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ROENTGENOLOGIC DISTINCTION OF BENIGN FROM MALIGNANT ULCERATING LESIONS OF THE STOMACH*

B. R. KIRKLIN, M.D.

Section on Roentgenology, The Mayo Clinic
ROCHESTER, MINNESOTA

In the developmental period of gastro-intestinal roentgenology it was necessary to rely almost wholly on clinical data for specific identification of gastric lesions, and often dependence was placed on clinical facts to distinguish between normal and diseased states. Even today the combined clinico-roentgenologic approach is common abroad, but in this country clinicians and roentgenologists have found it advantageous to make their initial examinations independently and to correlate their respective data subsequently. By this initial independence and the constant endeavor to make complete diagnoses on the morphology of lesions as depicted by roentgen rays, marked progress has been achieved. Applied in this manner the roentgenologic examination becomes truly a study of the gross anatomy and pathology of living tissues. Often, moreover, the morbid anatomy is accentuated or supplemented by functional changes which make it possible to determine the character of lesions more readily than by macroscopic inspection of the tissues after excision. Accordingly, I shall review certain purely roentgenologic criteria which aid in distinguishing benign from malignant ulcerous lesions of the stomach, try to appraise fairly their degree of reliability and likewise point out their limitations.

Before considering them in detail, however, I wish again to insist that elicitation of these indexes, many of which cannot be seen in the filled stomach or in ordinary roentgenograms, requires thorough roentgenoscopic examination and attentive study

of the gastric mucosal relief. To exhibit the latter adequately it is necessary to distribute a thin coating of barium over the mucosa when the first swallows of the mixture are taken. The method was used long ago by Holzkecht, later by Carman, and has been followed consistently by the latter's successors and many others. In recent years European roentgenologists have amplified the procedure by making roentgenograms of lesion-bearing areas after roentgenoscopic localization. This is desirable for purposes of record, but the diagnosis is essentially roentgenoscopic.

Benign Gastric Ulcer

With the technic described, a striking characteristic of simple gastric ulcer is an accentuation of the rugæ in the vicinity of the ulcer and their tendency to converge toward its site. The resulting stellate or puckered appearance of the affected area is often the first clue to the presence of the ulcer. At this time the barium-filled crater may also be recognizable, and, especially

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after the stomach is filled, it is evident that the niche projects into the wall of the stomach beyond the normal confines of the gastric lumen. Usually the shadow of the

nign ulcer, often contrasts strongly with the latter roentgenologically. Its niche, like that of simple ulcer, is sculptured in the wall of the stomach and thus extends be-

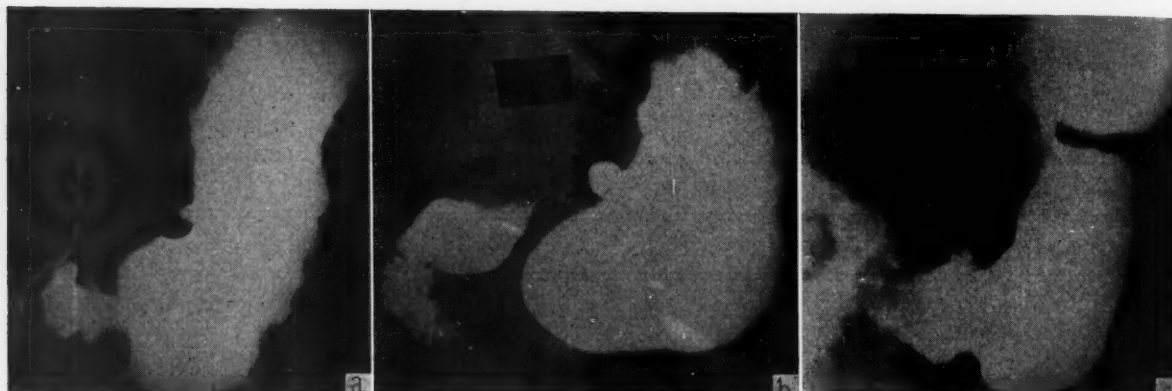


Fig. 1a. Niche of a benign ulcer on lesser curvature just above the incisura angularis, and showing also antral spasm; there was definite tenderness over the ulcer during fluoroscopic manipulations; b, large ulcer on lesser curvature with marked prepyloric spasm and shortening of the lesser curvature (snail stomach); these characteristics together with marked tenderness indicate a benign ulcer, and c, niche of a benign ulcer high on lesser curvature with "B-type" hour-glass deformity.



Fig. 2a. Small, hazily depicted malignant ulcer on lesser curvature; note absence of spastic manifestations; b, large, shallow, irregular ulcer high on lesser curvature with absence of gastrosplasm and no tenderness; all these factors strongly suggest malignancy, and c, same case as b after eleven days hospitalization and rigid ulcer management; the niche has diminished but the roentgenologic appearance and absence of tenderness point to malignancy. At operation a few days later a malignant ulcer was found.

niche is dense, clearly outlined, smoothly rounded and moderate in size, with a diameter of 0.5 to 2 cm. Especially distinctive of benign ulcer is its common accompaniment by some form of gastrosplasm, such as curling of the antrum toward the lesser curvature, narrowing of the antrum, spastic retention, a tightly closed pylorus, or, exceptionally, an incisura in the plane of the ulcer (Fig. 1a, b and c). In keeping with the increased irritability, peristalsis is likely to be active. Finally the ulcer is often definitely tender to pressure.

Malignant Gastric Ulcer

In most of the foregoing respects malignant ulcer, a lesion which is morphologically an ulcer rather than an ulcerating tumor and frequently indistinguishable from be-

yond the normal boundary of the lumen, but often it is irregular, or hazily depicted (Fig. 2a, b and c). The rugæ about it are likely to be indistinct or obliterated, and they are almost never accentuated or convergent.

As a rule, spastic manifestations are absent. Peristaltic activity is usually diminished. Rarely is the ulcer tender to pressure. Malignant ulcers tend to attain greater dimensions than simple ulcers, and it is an accepted maxim that ulcers with a diameter exceeding 2.5 cm. are most often malignant. Another feature which may have more or less significance as to the probable malignancy of an ulcer is its situation. Ulcers on the greater curvature are almost invariably malignant, and those on the posterior wall or near the pylorus are

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more likely to be malignant than those on or near the lesser curvature and well removed from the pylorus.

It has long been held that perforated

in combination, is infallible (Table 1). Hence, the character of every ulcer constitutes a diagnostic problem, the solution of which requires active and thorough co-



Fig. 3a. Rather large, flat and faintly depicted niche of an ulcer on the lesser curvature, without gastrospasm, which characteristics suggest malignancy although the clinical data together with the fact that the patient was quite tender over the ulcer suggested benignancy; there is also a duodenal ulcer as is shown by the bulbar deformity; b, same case as in a a month after rigid ulcer management; the ulcer has almost disappeared and was entirely healed two weeks later.

ulcers which have formed an accessory pocket outside the stomach are invariably benign. It is true that when the accessory pocket is round or ovoid, as it is in most instances, the lesion is almost certainly benign, but when the pocket is irregularly shaped the process may prove to be carcinomatous.

On the basis of such indexes, malignant ulcers can be distinguished from the benign variety in the majority of cases, but not in all, for none of the signs, singly or

operation between roentgenologist and clinician. The clinical history, analysis of gastric content and many lesser subjective and objective manifestations should be weighed carefully, and the slightest roentgenologic sign of malignancy should be heeded. If the respective examinations yield discordant results, reexamination should not be omitted. As a final test, observation of the effect of medical management may be necessary (Fig. 3a and b, and 2b and c). Even the results of this test, however, may

TABLE I. ROENTGENOLOGIC CRITERIA OF BENIGN AND MALIGNANT GASTRIC TUMORS

Benign	Malignant
Niche usually less than 2 cm. in diameter	A niche exceeding 2.5 cm. in diameter strongly suggests malignancy
Niche regularly hemispherical; dense; margins sharply defined	Niche often irregular; faint; margins poorly defined
Ulcers on lesser curvature, not near pylorus	Ulcers on greater curvature almost invariably malignant Ulcers on posterior wall likely to be malignant Ulcers near pylorus open to suspicion
Gastric peristalsis likely to be active	Peristalsis often diminished or absent
Spastic manifestations common: Narrowing of antrum Curling of antrum Hour-glass contraction	Spastic manifestations rare
Rugæ commonly accentuated and converge toward niche	Rugæ adjacent to niche often faintly marked or effaced
Pylorus spastic	Pylorus gaping
Localized tenderness over ulcer	Ulcer seldom tender to pressure

be deceptive. For example, among the patients examined at the clinic in the last few years was one with two ulcers on the lesser curvature which, both clinically and roent-

also ulcerates, of course, but ordinarily the infiltrative stiffening and contraction of the gastric wall are conspicuous and characteristic.

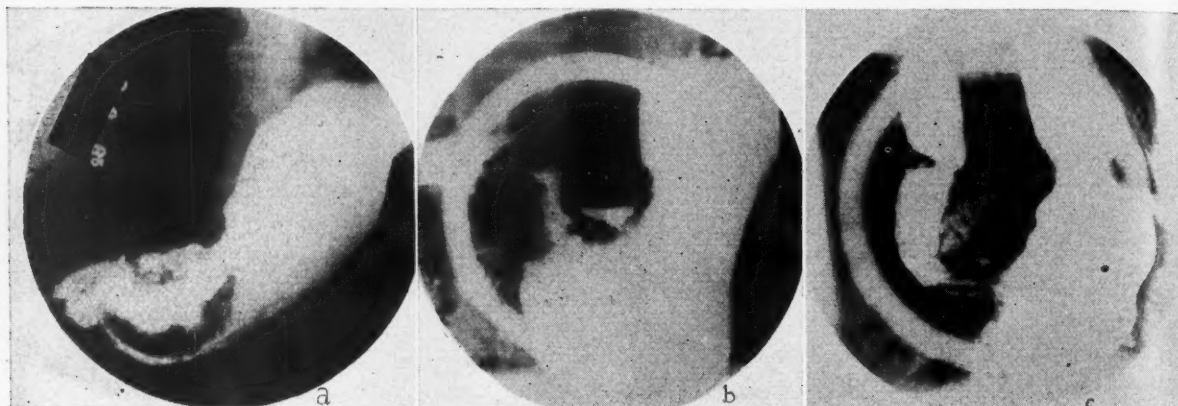


Fig. 4a. Large ulcerating carcinoma in distal third of stomach; the barium-filled, meniscus-shaped crater partially surrounded by the characteristic halo, constituting the meniscus-sign complex, can easily be seen; b, small ulcerating carcinoma on the lesser curvature with the typical meniscus-sign complex, and c, small ulcerating carcinoma, 1.5 cm. in diameter, showing meniscus-sign complex on the lesser curvature at the angle (indicated by the arrow). Grossly, this lesion before and after surgical removal was thought by the surgeon and pathologist to be benign, but microscopic diagnosis was ulcerated adenocarcinoma, grade 3.

genologically, appeared to be benign. After hospitalization and medical management, clinical cure resulted and all roentgenologic signs of the ulcers disappeared. A few months later the patient returned. Both ulcers had recurred and grown larger, and the lesions were found at operation to be carcinomatous.

Clinical review and coöperation are especially desirable to determine the probable nature of prepyloric ulcers. In many cases the niche of the ulcer is not demonstrable, spastic or organic contraction of the antrum dominates the picture, and the roentgenologist may be able to say only that a prepyloric lesion is present.

Ulcerating Carcinoma

Benign intragastric tumors commonly ulcerate, but not deeply, and the lesions are essentially tumorous rather than ulcerous. Usually the growths are multiple, pedunculated, and have fairly smooth surfaces. The outline of the gastric wall is likely to be preserved and peristalsis is not altered. Accordingly, the roentgenologic diagnosis of benign tumor is most often correct, but, as benign growths tend to become malignant, surgery cannot safely be delayed. Large soft carcinomas of the stomach usually ulcerate; but tumefaction, with the corresponding large defect which it produces, is predominant and the roentgenologic diagnosis is seldom in error. Scirrhus cancer

Small ulcerating carcinomas are less easy to discover and identify unless the roentgenoscopic and roentgenographic technics are appropriate and are carefully executed. Occasionally they are encountered when exceedingly small and are then likely to be overlooked. In many instances ulceration so preponderates that the element of tumefaction is not readily apparent. Some years ago Carman observed that when an ulcerating carcinoma is situated on the lesser curvature, the crater of the ulcer appeared roentgenoscopically as a concavo-convex shadow, and, because its shape was like that of a lens, Carman applied to it the term "meniscus." At the clinic, the diagnostic value of the meniscus sign with its attendant phenomena has been abundantly verified.

Although the meniscal form of the crater, as seen in typical and somewhat advanced cases, is important, I consider the slightly raised, overhanging border to be even more significant, for it is more constant than the crescentic crater. Under pressure the ridge appears as a clear zone or halo encircling the ulcerated area if the latter is situated on the posterior wall; if the lesion is on the lesser curvature the ridge separates the crater from the shadow of the barium in the stomach (Fig. 4a, b and c). In addition, the niche does not project beyond the normal line of the lumen, the adjacent rugæ are faint or obliterated, it is not tender to

pressure, and spastic phenomena are absent. Practically, however, these accessory signs are superfluous, and the clear zone representing the infiltrated border of the ulcerous lesion is sufficiently distinctive. In every surgical case in which the meniscus complex was elicited, an ulcerating carcinoma was found at operation. In several cases observed at the clinic during recent months the lesion varied from 1 to 3 cm. in diameter, yet the diagnosis was made with assurance, although in certain instances the lesion after excision bore no macroscopic signs of malignancy.

In conclusion, it may be said that the diagnosis of malignant disease of the stomach by either the clinician or the roentgenologist is usually reliable, but the opinion

of either that a lesion is benign is less trustworthy. One obstacle to the diagnosis of early malignant disease is the inclination to think of gastric carcinoma as a gross tumor, not as an ulcer. It is true, unfortunately, that most carcinomas at the time of discovery are large tumors and usually inoperable. It is also true that most niche ulcers are benign. But malignant ulcers and ulcerating carcinomas in which neoplasia is not obvious must be kept in mind. It should not be forgotten that two-thirds of all gastric lesions are carcinomatous. Hence, when organic disease of the stomach is discovered, it should never be considered with finality as benign and nonsurgical unless abundant and flawless evidence can be adduced to sustain the diagnosis.

TREATMENT OF FUNCTIONAL GYNECOLOGIC DISORDERS BY PITUITARY AND OVARIAN IRRADIATION*

F. A. FORD, M.D., and H. M. NELSON, M.D.
DETROIT, MICHIGAN

Irradiation of the pituitary gland, in the treatment of benign gynecological disorders, was instituted as an empirical procedure. The attempt was based on the observation that gynecological symptoms were often improved in patients undergoing irradiation for pituitary tumor.

In 1922, Hofbauer reported good results in a series of patients subjected to pituitary irradiation for gynecological conditions. Similar studies, by Werner and Shaver, and Borak, appeared in 1923 and 1924. Patients presenting evidences of hypopituitarism or hypoövarianism responded most favorably to the treatment. The optimum amount of radiation was much smaller than that used in tumor therapy. Effective results were obtained, in many instances, with exposures scarcely greater than those used in roentgenographic procedures. This low dosage produced no microscopic evidences of cellular change. The term stimulation therapy was applied to this type of treatment, because of the apparent increase in hormone production which was obtained. No biologic proof that there is a direct stimulation has been presented.

Certain gynecologists began to irradiate the ovaries directly in cases which were primarily hypogonadal. Irradiation of the ovaries was combined with that of the pituitary, at times. This was considered safe, because irradiation within the limits used, produced no evidence of a destructive effect on the most radio-sensitive cells.

The rapid advance of biochemistry has furnished evidence to confirm the theories of etiology for many of the syndromes in the clinical category of ovarian and pituitary hypofunction. More effective hormone preparations have been developed for use in treatment, also. It is difficult to obtain complete and accurate data in these types of cases, however. Expense of treatment and lack of adequate laboratory facilities prevent complete biological studies in many cases. Hormone treatment often fails even when prolonged and intensive. It is for these cases that radiation therapy has been advocated.

The interest of the physician centers on the questions of the safety of radiation therapy, the possibility of late sequelæ of an undesirable nature, and its relative efficiency.

The patients under consideration present primary disturbances of the menses, for

*From the Departments of Radiology and Gynecology of the Woman's Hospital, Detroit, Michigan.

which no organic cause can be found. They also present stigmata of pituitary or hypogonadal disturbances. In addition, there are those who suffer marked symptoms at the climacteric.

The common symptoms are amenorrhea, oligo- or hypomenorrhea, menorrhagia, and sterility. Menorrhagia, in young women without definite pelvic pathology or evidence of systemic disease, is regarded by most gynecologists as a phase of the same endocrine deficiency which produces amenorrhea in other patients. Luteinization of the follicle is apparently inhibited in the menorrhagic cases. In amenorrhea, the graafian follicle does not produce sufficient hormone to bring about the normal endometrial cyclic change. Dysmenorrhea and sterility are associated symptoms in most cases of gonadal, and some cases of pituitary disturbance.

Pituitary irradiation has been used extensively by many gynecologists for exaggerated symptoms of the menopause. It is known that the level of anterior pituitary hormones in the blood is greater at this period. Fluhman demonstrated, in patients who had been irradiated by Newell with light exposures of x-ray, that there was an appreciable fall in the blood level of these hormones within a few hours after treatment. It is questionable whether this immediate decrease is a constant finding, representing the basis of satisfactory results in this type of patient.

The experience gained by prolonged observation of patients treated with heavy exposure of rays for tumors of the pituitary gives assurance of freedom from immediate or late harmful effects after irradiation of the pituitary gland. There has been greater apprehension in applying even light exposures to the ovaries. Ford and Drips carried on a series of studies of the ovaries of rats ten years ago, after the application of graded doses of radiation. They were unable to detect any degenerative histologic changes in the ovaries over periods of one year to eighteen months, after giving doses within the limits of those used in this type of therapy. Schoenhof conducted immediate studies (within five to seven days) after irradiation of a group of young women, treated before undergoing hysterectomy for carcinoma of the cervix, with negative findings. In the earliest cases, with marked

menstrual disorders, selected for treatment at the Mayo Clinic, Ford applied irradiation to one ovary. These were all cases in which a thorough trial of hormone therapy had proved unsuccessful. Clinical experience has since shown the relative safety of the procedure. Ford repeated ovarian radiation six times, in a six year period, in one patient who had suffered incapacitating dysmenorrhea. There was no evidence at the end of eight years of a disturbance of menstrual rhythm.

Mazer applied ovarian irradiation, of this type, in eleven cases of young women with normal menstrual rhythm; in six because of sterility, and in five for hypomenorrhea. None of the patients showed any variation in menstrual regularity after three years. The cases treated by Ford, between 1927 and 1931, which have been followed have shown no evidence of a precocious menopause or an aggravation of symptoms, which could be considered due to radiation. This is in accord with Borak, who uses both pituitary and ovarian irradiation; and with Werner, who has limited his treatment to the pituitary. Their experience has covered many hundreds of cases and is based on eight and nine year observation periods.

There are many examples of spontaneous improvement in the functional cases under consideration. The symptoms are subjective, to some degree, in dysmenorrhea; and the possibility of suggestion playing a role in the patient's evaluation of treatment is recognized. Newell planned a series of treatments to eliminate bias, of either patient or radiologist, in the interpretation of results. Patients were treated alternately with one of two treatment cones, identical in appearance and weight. A lead filter was interposed between the tube and patient in one. The cones were designated A and B, and the radiologist was unaware which contained the filter until after the records had been kept for a prolonged period. It was found that with either cone used there was a tendency for the patient to report an early improvement in symptoms, indicating the element of suggestion. There was a clear difference in the two groups of cases over a longer period, however. At least two-thirds of those having only the simulated treatment had no change in symptoms. Two-thirds of the cases treated for dysmenorrhea reported relief. Newell's results were less convincing in the treatment of

menorrhagia, amenorrhea, menopausal symptoms, sterility, and frigidity. His technique consisted of divided doses of rays, produced at 200 KvP., filtered through $\frac{3}{4}$ mm. copper; and giving a total dose of 285 r units to each of two lateral pituitary fields, within a three weeks' period.

Mazer combined pituitary and ovarian irradiation, in doses of 50 to 80 r units per field, for three exposures to each field, at weekly intervals; using a ray of moderate length, produced at 127 KvP., and filtered through 5 mm. aluminum. He found the treatment most effective for the relief of amenorrhea, and the control of menorrhagia. In group of fifty-one amenorrheic patients, twenty-three had been menstruating regularly since treatment for periods of one to four years, without the stimulus of intervening pregnancy, at the time of his report. Two patients had become pregnant. Of thirteen patients with menorrhagia, ten were relieved, and had remained well for an average period of two and eight-tenths years. Dysmenorrhea, which Mazer believes is associated primarily with ovarian hypofunction, had been relieved in only five of fourteen cases. Two patients improved after pregnancy. Thirty-eight patients, married to healthy males, who were previously sterile had borne eighteen healthy children; two were pregnant at the time of the report; two had had abortions, one of whom had a normal full-term pregnancy later. Mazer states that, in the treatment of amenorrhea and sterility, no other agent at our disposal gives as satisfactory results with so little trouble and expense.

The majority of the cases treated by Ford and Drips at the Mayo Clinic between 1927 and 1931 received ovarian irradiation. Some were given a combination of ovarian and pituitary radiation, and a few pituitary treatment only. The exposures varied from 150 to 200 r units per field, with the rays produced at 200 KvP., filtered through $\frac{1}{2}$ mm. copper. A single exposure was given to each field, and treatment never repeated within a two months' period. Most patients had one treatment only.

Of twenty-nine single women treated for amenorrhea, menses were reestablished for at least three months in twenty-one; continued regularly for one and one-half to six years in seventeen. Eight patients failed to respond to treatment. Of thirty-seven

married women with amenorrhea or hypomenorrhea and sterility, menstruation was reestablished for at least three months in twenty; continued regularly for one and one-half to six years in fourteen. Thirteen of this group failed to respond to treatment. Nine patients became pregnant within a short time after treatment. There had been no definite results in the reestablishment of menstruation or fertility, in the same type of cases prior to 1927. In a comparative review of all types of treatment in two hundred forty-four cases of amenorrheic disorders, presented in 1934, Drips found that low dosage irradiation of the ovaries or hypophysis had proved the most effective therapeutic agent.

Ford and Drips had a limited experience with the menorrhagias and menopausal syndrome. The latter field was abandoned early because of variability in results, and the marked element of suggestion in this type of case. Others have reported good results in the relief of the most distressing symptoms associated with the climacteric. Collins, Menville and Thomas presented a series of forty-seven cases of menopausal syndrome, the most common symptoms being frequent flushes, dizziness, headaches and nervousness. Irradiation of the pituitary gland with one hundred and forty-eight r units per field with rays produced at 120 KvP. and $\frac{1}{4}$ mm. copper filter led to excellent results in 40 of the 47 cases, in that all symptoms complained of either disappeared entirely or occurred so infrequently or mildly as to cause no inconvenience or discomfort. The longest observation period was sixteen months, the patient remaining free from symptoms during that time.

Whether the differences reported in response of the various syndromes is associated with minor differences in technic as noted in a comparison of the technical factors listed here, or are only an evidence of the subjective element in interpretation of results is questionable and requires further study.

The experience of the treatment of similar cases at the Woman's Hospital in Detroit during the past eighteen months has brought forward certain difficulties of making this form of therapy available to the general practice which we wish to emphasize. In the work, so far reported, cases

have been selected by the same individual or small group of individuals with certain fixed standards or criteria for evaluating the status of endocrine disturbance. With an open staff and an increasing interest in this form of therapy, cases are referred to the radiologic department with specific requests for either pituitary or ovarian irradiation. While many of the cases have been intensively and well studied and accurate data are provided, other cases represent a tendency to try pituitary irradiation in any confusing or unexplainable syndrome, or in obvious general systemic disease, in the hope that if menstrual symptoms are corrected the general condition may improve. We believe it would be to the best interests of patients and physicians to organize endocrine clinics, in general hospitals, to discuss cases of functional disorders for radiation therapy. This would also safeguard this type of radiotherapy from disrepute. This can be done without presentation of the patient before a group, and would not disturb private patient status, or the relation of the patient to her physician. It would lead to improvement in results of cases treated, and to recognition of subgroups among the large number of patients with endocrine disorders. The follow-up of cases referred for treatment in a general hospital is difficult, as no direct contact is made by the hospital or radiologist with the patient. We must depend upon reports from the physicians as to results. We feel that if this can be followed there would be a better control of results than if the subsequent reports are tabulated by those who are carrying on the work and are perhaps biased. There is little point in listing our relatively small groups from the Woman's Hospital. We have had instances of notable improvement in dysmenorrhea, especially of the type associated with marked nausea and vomiting; and in a few cases of amenorrhea and sterility, one of the amenorrheic cases continuing to menstruate regularly for fifteen months since the single treatment, a second for one year, after having an ectopic pregnancy two months after the treatment. We feel that the majority of

cases referred for treatment because of sterility have been poorly selected. In one case of severe mastodynia and marked psychic depression in a woman of forty years mastodynia was entirely relieved and there has been a complete change in mental poise since the treatment. A second case of marked neuroses in a woman over forty was apparently aggravated by treatment. We have also encountered some severe immediate reactions in the nature of intense headaches for the first twenty-four hours after pituitary irradiation, most of these patients having had definite enough relief of dysmenorrhea so that the patients have requested a second treatment after several months if there was any indication of return of the dysmenorrhea, in spite of the immediate reaction. One case referred for treatment of a so-called pituitary headache has been worse since the treatment. In this case there were insufficient data for us to rule out a nephritis as the essential cause of the headache.

In conclusion we wish to emphasize that although there is convincing evidence of possible alteration of some of the syndromes associated with pituitary or ovarian dysfunctions by light exposures of these glands to irradiation, that this is still a field in which accurate control of results is necessary in order to improve our judgment in the selection of cases. We believe this radiation therapy should be reserved to cases where all methods of hormone administration have failed and that where such radiation therapy is offered in a general hospital it should be suitably regulated by an advisory committee or clinic to insure conservative and efficient application.

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RADIATION THERAPY IN DERMATOLOGY*

CLYDE K. HASLEY, A.B., M.D., F.A.C.R.
DETROIT, MICHIGAN

During the last few years no startling advances have been made in the method of applying radiation therapy to the common dermatoses. Radiation therapy, since the discovery of x-rays in 1895, has been used empirically for the more common skin affections with relatively few delayed reactions and bad results. It is a generally known fact that radiation therapy is given with an involved hazard, but it so happens that most of the non-malignant dermatoses respond to a fractional erythema dose which, unless repeated too frequently, has no injurious effect on the skin. Consequently, radiation therapy still commands a high position in the armamentarium of dermatological therapy.

A multitude of technics (some being very hazardous) can be used on most of the cutaneous affections with benefit and often with cures; but in our opinion in treating a non-malignant cutaneous condition it is better to lose a patient because of failure to cure than to cure at the expense of overdosing and subsequent cosmetic disfigurement. The treatment of malignant dermatoses, however, is quite another problem. It is unfortunate that many skin malignancies have been and many still are being under-treated by radiation therapy. An improper initial dose may be the very cause for failure to cure. The percentage of cures can be greatly enlarged if proper treatment is given. Hypermassive treatment is absolutely necessary if malignancy of the skin is to be successfully handled and treated with radiation therapy. The radiologist or physician accustomed to mediocre results can obtain excellent results by changing to the proper technic—the hypermassive technic of treatment which will be discussed in detail later.

A brief review of the facts and theories of how radiation energy is carried, and absorbed by the skin and acts on the underlying cellular structure is essential if the therapeutic effect on living tissue is to be explained. Tissue reaction and tissue response to irradiation are complicated mechanisms. Only the absorbed radiation is biologically active.

How Do X-rays React?

Holthusen concludes that there is a good reason to believe that x-rays, as well as other electro-magnetic rays, attack the albumin molecule first and the lipid next. Changes

involve all parts of the cell—nucleus, cytoplasm and cell membrane. Split proteins are produced, no doubt, and exercise an effect which may be beneficial to some and detrimental to others. This constitutes the basis for the protein reaction theory.

Other observers have attempted to explain the biological effect of x-rays and radium rays in cellular structure on histological and histogenetic findings. The microscopic findings show the morphological changes, but these fail to explain what actually happens. Consequently x-rays are said to react (1) directly and (2) indirectly. Some of the local or direct changes have been pointed out by Beatrice Pullinger, such as—the immediate reaction to x-rays or radium is an intense hyperemia with stasis of the blood and local edema. Small platelet thrombi develop in the engorged vessels. Some cell destruction results from thrombosis and anemic necrosis. In the presence of an infection large doses of x-rays contribute to the formation of thrombi. Consequently small doses of x-rays should be given when treating an infection. Desjardins states that the action of x-rays and radium on normal tissue is first on the lymphocytes. Lymphocytes are easily destroyed. Desjardins and others have stated that on their destruction lymphocytes liberate an antibody. To quote Desjardins further: Radio-sensitivity of cells is listed as follows: (1) Lymphoid cells; (2) Polymorphonuclear; (3) Basal epithelium of the salivary glands being most sensitive and those of the testis and ovary being the next most sensitive; (4) Endothelial cells of blood vessels, pleura and peritoneum; (5) Connective tissue cells; (6) Muscular cells; (7) Bony tissue; (8) Nerve cells.

It is incorrect to think of irradiation having a direct stimulating effect. Paradoxical-

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ly, stimulation results because there is an acceleration of cellular activity which is the indirect response to wave stimulation of a biochemical and a biophysical nature. Additional remarks will be made later relative to the stimulating effect of x-rays. Now, the beneficial effect from irradiation resulting from the indirect reaction may be due to the response of normal contiguous structures which are in the field of exposure and by the constitutional stimulation which results from the split protein reaction, enzymes, etc. All cells contain enzymes that are necessary for growth, reproduction and function. These intracellular enzymes appear to be greatly influenced by radiation. The autolytic or catalytic enzymes are more easily affected than those having the opposite or the synthesizing effect. Radiation, when given in the sensitive premitotic phase, may have an inhibitory action that prevents cells from completely undergoing mitosis. Some of the miscellaneous reaction which has been reported can be summed up in a few short sentences.

Herzog thinks that brief general irradiation stimulates blood formation, the action being due to the formation of chemical substances in the body which excite a stimulating influence. Strauss is of the opinion that cell lipoids are ionized. Dessauer's "Heat-point theory" is interesting—this is an attempt to explain cell activity on a physical premise. Held reports a general action on blood sugar regulation and a sugar-transforming action in the areas irradiated. MacKee gives three hypotheses which have been advanced to explain the biological effect of x-rays and radium:

- (1) **Lecithin Hypothesis:** Lecithin is an important constituent of animal cells. (The changes in the chromatin were due to decomposition of the lecithin.)
- (2) **Chromatin Hypothesis:** Microscopical examination shows chromatin change after irradiation. (The change, however, is not confined to chromatin.)
- (3) **Enzymatic Hypothesis:** (This theory explains in part some of the biological changes. The final explanation may be based on a chemical and physical interpretation.)

This foregoing incomplete review is mentioned to emphasize the fact that electro-magnetic waves react in a complicated manner. Recently changes in the circulating

blood stream have been studied following irradiation as well as the effect on the neurovegetative system, but much experimental work remains to be done.

How Are X-rays Carried?

Energy from radiation is carried by electro-magnetic waves, in small bundles, called quanta (Planck's theory). The intensity of radiation depends upon the number of quanta delivered to the surface per second, that is, upon the frequency of vibration. Different forms of radiation energy have different phases and frequencies and consequently give a different distribution of energy because of the difference in wave lengths. The penetration of an X-ray beam depends upon its wave length—short x-ray penetrate deeper and the short waves, strangely, are the hard waves. Long or soft x-rays act superficially. In the treatment of dermatoses we are concerned particularly in the response of the cutis to x-rays and marked benefits have been observed by using the unfiltered and long x-rays. In the treatment of malignancies another factor enters and we are concerned in what happens 5 cms. or more below the skin surface. Consequently a mixed form of treatment is indicated which will be discussed a little more in detail at a later time.

Thus it can be seen that the biological reaction to a marked degree depends upon the intensity and the time of radiation, while the biological effect depends to a greater degree on the amount of energy actually absorbed by the tissue.

The various forms of electro-magnetic waves used for therapeutic purposes may be classified as follows:

- (1) Short Hertzian
- (2) Infra-Red
- (3) Visible
- (4) Ultra-Violet
- (5) X-Rays
- (6) Beta rays of Radium
- (7) Gamma rays of Radium

Hertzian waves are used in desiccation and electro-coagulation.

Infra-Red rays are used for their heat effect.

Visible Light: Visible light has been thought to have some bacteriocidal effect. It is impossible, at this time, to go into a detailed discussion of the theories relative to their action and benefit. In the remain-

ing time the more important action of ultra-violet rays, x-rays and radium will be considered.

Ultra-Violet rays: Ultra-violet irradiation was used empirically for many years to treat and to prevent rickets before Steenbock and Windaus pointed out that the resistance to rickets was due to an irradiated substance—one of the sterols of cholesterol which is now called ergosterol. It was pointed out by Stevens in 1930 and by others that the cells of the skin contain more cholesterol than any other organ of the body. One of the sterols of cholesterol is responsible when irradiated with ultra-violet light for the protection and cure of rickets. Likewise, Hoffman, as early as 1916, advanced the belief that irradiation of the skin produced a protective material in the nature of a secretion which counteracted many infectious diseases.

Many observers concur with Hoffman that the skin is a protective organ of the body and that this protection comes from both the epidermis, which is the outer mechanical covering, and from the cellular activity and response of the cutis. To go a little more into detail, when one considers the histology of the cutis in which there are collagenous and elastic tissues, endothelial lining of the blood and the lymphatic spaces, sebaceous and sweat glands, etc., it seems logical that these different tissues may have some secretory function which contributes to the well being of the individual. Some recent works in immunity, anaphylaxis, allergy and endocrinology support the assumption of cellular protective activity. In all probability, this secretion or enzymes is absorbed and carried to other tissues not anatomically a part of the skin, and thus exercises some physiological function in the protective mechanism of the body. Finsen found that irradiation of normal and diseased epithelial cells resulted in a changed chemistry which has an important role in the process of healing. The bactericidal action was indirect.

Ultra-violet Ray Energy

The energy quanta of ultra-violet produces a molecular change in the cellular tissue it strikes. This results in a chemical action due to electronic activity. It has been pointed out that the erythema of the

skin from ultra-violet rays may be due to this chemical and molecular change. There are no scattering electrons or atoms to carry the energy or even a part of the energy quanta to other atoms following ultra-violet irradiation, in which respect it is different from x-ray or radium, as the latter scatter electrons. From a biochemical standpoint, it has been found that the sero-albumin of the tissue after ultra-violet irradiation becomes more or less opaque to subsequent ultra-violet rays.

General Treatment

The object of therapeutic application of various forms of radiation is to cure the pathological condition or to relieve objective and subjective symptoms. It is impossible at this time to consider the various dermatological conditions which will respond to x-ray therapy. The field can be covered briefly, and a few of the disease entities can be mentioned if the dermatological conditions are grouped according to their histopathological findings and specific origin. For example, Group 1 of the inflammatory conditions resulting from specific organisms includes furunculosis, carbuncles, erysipelas and cellulitis, and to this group may be added the dermatoses due wholly or partially to pyogenic organisms, of which acne vulgaris is perhaps the one condition most frequently encountered. Others in the group are rosacea, sycosis vulgaris, pronychia and a group of miscellaneous diseases. These conditions show inflammatory reaction in the cutis which has been found to be radio-sensitive.

A second group of inflammatory conditions resulting from fungi—all types of ringworm, including scalp, beard, nails and glabrous skin, improve following radiation therapy. The beneficial effects from radiation are not the result of direct reaction on the fungi but are the cellular response to the biochemical change, etc., which makes the skin an unfavorable soil, at least temporarily, for the growth of fungi. Recurrences are due to reinfection. Along with this group of fungi may be classified blastomycosis and actinomycosis.

A third group of inflammatory conditions of the skin is due to chemical irritants—dermatitis venenata; occupational dermatitis; allergic dermatosis, etc. All of the above named conditions respond to x-ray therapy.

A fourth group includes the chronic specific inflammatory diseases — another group of inflammatory dermatoses which are usually classified by dermatologists as chronic specific inflammations. Some of these conditions respond to treatment while others do not. For example, this group includes the various types of tuberculosis and their toxic manifestations. The author suggests that there is a definite relation of response to x-ray therapy depending upon the acute exacerbation of inflammatory activity in relation to the time of treatment. In other words, the cellular infiltrate of an acute inflammatory reaction is more radio-sensitive than one resulting from a low-grade chronic inflammatory reaction. Does this not explain why there are good, bad and indifferent results following the x-ray treatment of tuberculosis of the skin? Give fractional doses during the inflammatory stage and observe the marked improvement.

Syphilis is mentioned here simply because it is classified as a chronic specific inflammatory disease and is a condition which does not respond to irradiation therapy. R. J. Cowan in 1905 reported that x-ray therapy was beneficial in tertiary lesions of the skin—perhaps a marked secondary inflammatory involvement accompanied the luetic infection.

Hypertrophies and New Growths (exclusive of malignancy)

In certain hypertrophies and new growths of the skin x-ray and radium have been found to be of distinct service. In others, it appears to be of little use. This again may be due in part to the kind of cells in the cutis and the cellular infiltrate which accompanies the condition. For example, keratosis follicularis usually responds to x-ray therapy. Histologically lymphocytes, fibroblasts and giant cells of a foreign body type are present.

Keloids

Keloids respond to irradiation therapy. Histologically it is a connective tissue new growth limited to the corium. The cells present numerous mitotic figures. Mitotic cells are radio-sensitive.

Angiomas and Birthmarks

The treatment of choice is usually radiation therapy. The histopathology is for the most part in the superficial layers of

the corium. The blood vessels and lymph-spaces are lined with endothelium and usually there is marked proliferation of connective tissue. These various types of tissues and cells are radio-sensitive, particularly to the radium rays.

Verruca—Warts

These may be treated successfully by radiation. Hypermassive doses are the most effective.

Senile Keratosis

Senile keratoses are radio-sensitive. Many are potentially malignant. Consequently hypermassive irradiation is indicated.

Treatment of Epitheliomas—Skin Malignancies

In such diseases as malignancies it is necessary to use a dosage of x-ray or radium which may produce a violent local dermatitis with the subjective symptoms of burning and tingling. In squamous cell carcinoma it is desirable to irradiate the adjacent lymphatic glands with heavily filtered rays administered fractionally until a so-called Coutard reaction is produced. If such a form of treatment is undertaken the patient should be told that a violent reaction will follow which will require a few weeks to subside. If the lesion to be treated involves the lip, the patient may have some difficulty in swallowing for a few weeks following treatment. The patient must be assured, as treatment progresses, that the violent reaction is necessary. The author is of the opinion that many skin malignancies are under-treated. Hypermassive unfiltered x-ray has been used for over 20 years in treating epitheliomas of both the basal and squamous cell types. But in spite of this fact many dermatologists still need to be converted to the hypermassive form of treatment. It is possible to cure many of the basal-cell epitheliomas with a single x-ray exposure provided that a sufficient number of roentgen units are given. The surrounding tissue must be thoroughly protected with lead or other suitable material. If unfiltered rays are used it is advisable to treat an area of 2 cms. or less in diameter. If the malignancy is larger than 2 cms. in diameter it should be treated with small peripheral areas of exposures. Two thousand roentgen units measured in air can be given at the initial treatment to each small area. The small areas do not permit a

depth dose of any consequence as there are relatively few back-scattered and tissue rays with small areas. This controls the depth dose. The reason why many basal cell epitheliomas respond to a single exposure is that the primary or principal effect of the hypermassive treatment is a direct action on the neoplastic cell itself—a cytocaustic effect results.

Treatment of General Inflammatory Conditions

It has been found that small fractional doses of filtered x-ray are of distinct service in the treatment of recurrent furuncles and carbuncles as previously mentioned. The author is of the opinion that x-ray therapy is the treatment of choice for carbuncles and is of distinct service in treating certain types of acute inflammatory diseases. Filtered x-ray is particularly indicated in cellulitis, erysipelas, and other inflammatory conditions which cannot be classified as dermatological diseases. The treatment for inflammatory conditions is most effective if given during the stage of leukocytic infiltration before actual suppuration takes place. It has long been known that the lymphocytes are easily destroyed by x-ray and the most plausible explanation of the beneficial reaction is due to a lymphocytic destruction. According to Desjardins—J.A.M.A., 96:401, (Feb. 7) 1931—lymphocytes probably contain a protective substance which is available for defense against invading organisms when liberated by the cells on disintegration. The greater number of lymphocytes present and the greater number affected by x-ray the greater are the benefits resulting. Then, too, the leukocytes are quite vulnerable to x-ray. It is probable that on their destruction a protective substance results.

The author has observed that the skin affections which respond most readily to fractional x-ray are the ones which present some congestion and hyperemia. In other words, the acute inflammatory conditions with their acute inflammatory infiltrate respond more rapidly to x-ray than does the chronic inflammatory skin condition. Can this difference in response to irradiation

therapy be explained on the basis of cellular infiltrate? Is it a stimulating effect—a paradoxical stimulating action? A physical explanation has been offered: Inflammation, congestion, hyperemia and stasis are accompanied by a localized increase in iron content—hemoglobin. X-ray treatment produces more secondary rays due to the increase of iron and hence a stimulating effect results. It is the author's opinion that the action of the rays on the acute inflammatory cellular infiltrate, which in many instances is lymphocytic, leukocytic, etc., is of more importance than the increase of the secondary rays from the iron content. Years ago, an acute inflammatory skin reaction was given as one of the definite contra-indications to x-ray. Today, it is one of the indications for fractional filtered x-ray therapy. The type of infiltrate in the cutis changes as the condition passes from the acute to the chronic stage. Round cells and plasma cells of the chronic inflammatory stage are not as radiosensitive as the lymphocytes and leukocytes of the acute inflammatory involvement.

Would it not be logical then, in treating chronic inflammatory dermatitis, to produce a super-imposed acute inflammation—chemical for example—just before x-ray therapy is given? This form of therapy has been found useful but no one as far as the author knows has ever given this correlation of response of the acute inflammatory infiltrate to x-ray treatment.

Conclusions

Hypermassive unfiltered x-ray treatment is indicated for local skin malignancies. The lymphatics and surrounding skin should be treated with heavily fractional radiation therapy. Under-treatment is dangerous.

Inflammatory conditions should be treated with fractional doses of filtered x-ray at frequent intervals. Over-treatment is extremely dangerous. It is better to err on the side of under-treatment and filters. Unfiltered x-ray is used too extensively in treating dermatological conditions. Filtered rays which produce a greater depth cellular response with less hazard to the skin should be the method of choice.

PRIMARY CARCINOMA OF THE LUNG*

J. C. KENNING, M.D.
DETROIT, MICHIGAN

Our ideas regarding the incidence of pulmonary malignancies have undergone considerable change in the past fifteen years. Today cancer of the lung has become a very definite clinical entity. This can be ascribed to the facts that we have become increasingly "malignant minded," that the roentgen-ray diagnosis has attained a foremost position, and that the development of the bronchoscope has enabled the pathologist to step in and verify the diagnosis before death claims the patient.

Statistical studies have brought us no nearer the solution of the cause of pulmonary malignancy. It is well known that lung cancer is frequent in certain types of miners, especially those working in the cobalt mines. The association of benzine products, such as asphalt, tar, and motor gases, has been noted. These factors may have some bearing on the apparent relative increase of carcinoma of the lung. The association of tuberculosis and pneumoconiosis with lung cancer has rarely been noted in our own experience.

Primary carcinoma of the lung is relatively rare in the colored. It is much more prevalent in the male than in the female, the proportion being about 9:1. Approximately fifty per cent of our own cases were found in people of Polish and Slavic descent.

The most common and earliest complaint noted was cough, and then, in their statistical order, pains in the chest, weakness, weight loss, and hemoptysis. Dyspnea is a relatively rare complaint. It is an interesting side-light to note that approximately one-quarter of the patients enter the hospital with a history simulating an acute pneumonic onset which was not infrequently supported by a similar clinical diagnosis.

From the radiograph, it is most simple and convenient to divide carcinoma of the lung into two main groups: (1) The obstructive type, which primarily initiates within the wall of the bronchus and grows into the lumen causing a varying degree of atelectasis quite early with associated infection, (2) the infiltrative type which primarily invades the surrounding parenchyma early and obstructs the lumen of the bronchus late.

In the diagnosis of primary pulmonary

malignancy the radiologist depends upon the presence of bronchial obstruction with associated atelectasis and the presence of infiltration and consolidation with no infrequent breaking down of the tumor mass to give him the necessary clue in the diagnosis. The added use of the Bucky diaphragm for penetration and visualization of the dense shadows, and the visualization of the bronchial tree by the instillation of lipiodol, have enabled the roentgenologist to give a correct diagnosis in as high as 80 per cent of the cases.

When a picture of atelectasis confronts the radiologist, the differential diagnosis takes on a complicated aspect. Atelectasis can be caused by obstruction within the bronchus or by pressure upon the bronchus from without.

Pneumonia is one of the most important conditions to be ruled out because so frequently patients enter with the typical history and findings of the disease. The diagnosis becomes doubly difficult when we know that the obstructive types of bronchogenic cancer are almost invariably complicated by the presence of secondary infection. The decreased aeration promotes a favorable soil for the multiplication of the bacterial inhabitants of the bronchial tree resulting in the clinical signs of pneumonia. The length of onset and general condition frequently determine the diagnosis.

Mucus plug following operation is not an infrequent cause of atelectasis. Here the rapidity of onset is the determining factor in the diagnosis. Opaque and non-opaque foreign body must also be considered. Extrabronchial causes of bronchial stenosis produce the same radiographic picture as the intrabronchial occlusions.

One of the most important and most difficult of the extrabronchial causes to rule

*The papers by Dr. Kenning, Dr. Brines, Dr. Leucutia and Dr. Donald constitute a symposium on carcinoma of the lung. Another paper read by Dr. McCord before the Section on Radiology will appear in the August number of this JOURNAL.

out is aortic aneurysm. A correct diagnosis from the radiograph is rarely possible in such cases. Occasionally a Bucky film will show the presence of focal areas of aeration in the periphery of the involved lobe. Generally, the atelectasis found in carcinoma is complete, so that in the presence of a positive Wassermann it is not illogical to assume that a large aneurysm which slightly releases the pressure on the bronchus during diastole can allow a small amount of air to slip into the lung and give the focal aeration.

Mediastinal neoplasms are always to be thought of in the presence of atelectasis. The most common causes to be considered are: Lymphosarcoma, Hodgkin's and leukemic glands. Chronic fibroid tuberculosis and chronic interstitial pneumonitis occasionally add to the burden of the differential diagnosis. The second large group of primary pulmonary neoplasms that confront the radiologist is the infiltrative type, also known as the oat-cell type of carcinoma. This group may assume a hilar, lobar, a diffuse, or a nodular character. This type of classification is really a descriptive picture designed to aid in fixing a mental picture of the anatomical and pathological changes taking place.

The hilar type of newgrowth is seen as a small patch of infiltration and consolidation, usually adjacent to the hilum. This must be differentiated from hilum tuberculosis, beginning abscess, early pneumonia, and unresolved pneumonia. Serial roentgenograms, history, sputum, and blood studies will enable the radiologist to reach a correct conclusion.

The infiltrating type of tumor may extend farther throughout the parenchyma by way of the lymphatics and bronchi to involve a whole lobe or even an entire lung. This type of infiltrating newgrowth will produce the lobar and diffuse forms of newgrowth.

These neoplasms give very interesting pictures and problems for differential diagnosis. The findings usually noted are those of an infiltrative and somewhat patchy opacity with an irregular, invading peripheral border. There seldom is any indication of displacement of the mediastinal structures. The latter is noted late in the disease when there has been involvement of the pleura with resulting irritation and effusion. The use of lipiodol in this type of growth is

frequently of aid to the roentgenologist. Although there is no change noted in the bronchial mucosa itself, comparison of the two sides, especially looking for encroachment upon the lumina, for aberrant courses assumed by the bronchi displaced by the malignant tissue, and for the sudden chopping off of the smaller bronchi, will enable the roentgenologist to come to very definite conclusions.

The invasive quality, particularly of the diffuse and nodular types, leads to a complication that gives another diagnostic point. Because of this invasive quality, the tumor destroys large numbers of vessels, and, in doing so, decreases its own blood supply so that sooner or later the central mass begins to degenerate. This necrotic process gradually liquefies and finally breaks into a bronchus. Following this, air enters the cavity and makes known the presence of the abscess on the radiograph. Numerous organisms can now enter the cavity, and with the associated liquefaction process lead to the clinical appearance of characteristic sputum. When the spirochete and fusiform *M. enter*, gangrene occurs and there is an increase in slough and the sputum becomes fetid. The abscess in the newgrowth differs from the abscess caused by the ordinary primary pyogenic invader, in that in the former there is an inability to react to the foreign invader.

This is due to the fact that the primary necrotic area in the newgrowth is relatively avascular and its cells cannot respond as can normal cells. The result is that there forms a large, irregular, gangrenous, foul smelling cavity which grows in size because of the inability of the tumor to wall it off. This picture is readily visualized on the radiograph and is to be differentiated from the smooth, thick walled cavity of the ordinary pyogenic abscess, or the thinner walled cavity of tuberculosis, or the very fine walled cyst.

The nodular type of pulmonary newgrowth is the rarest. This usually begins as a multiple number of vaguely defined, small areas of infiltration. The lesions closely resemble a bronchopneumonia but they are usually unilateral. The nodules tend to grow and coalesce to form larger irregular areas which are very likely to break down and form abscesses. The tumor, in this advanced stage, must usually be

differentiated from a diffuse bronchiectasis with marked associated pneumonitis. The length of history and use of lipiodol to demonstrate the bronchiectatic cavities and bronchoscopic examinations will make the diagnosis.

Before concluding, it is well to reiterate that the diagnosis of primary malignancy of the lung is by no means a rare one and that it is not primarily a radiographic diagnosis. At the present time, no one, how-

ever competent, is justified in making a diagnosis from the radiograph alone. It is true that the roentgenologist can go far toward making a correct diagnosis by the discreet and accurate use of the Bucky diaphragm and bronchography, but it is also very evident that a complete knowledge of the differential clinical findings and of the pathological changes that take place is absolutely necessary before a logical scientific conclusion can be attained.

PRIMARY CARCINOMA OF THE LUNG—PATHOLOGY

OSBORNE ALLEN BRINES, M.D.
DETROIT, MICHIGAN

Because of its peculiar behavior, unusual morphology and apparently increasing incidence, primary pulmonary malignancy constitutes an interesting lesion and a subject profitable for study. It is generally understood that these neoplasms are epithelial in character and of three types: squamous cell carcinoma, adenocarcinoma, and a small celled tumor which has been popularly referred to as "oat-cell" carcinoma. The latter has in the past been thought to be a sarcoma. In attempting to explain the presence of these three types of carcinoma in the lung, it has been said that adenocarcinoma is derived from peribronchial mucous glands, "oat-cell" carcinoma from a specific basal cell in the bronchial mucosa and squamous cell carcinoma from metaplastic epithelium that frequently occurs in inflamed bronchi. Instead of considering differences in cell types as distinct entities, it now seems preferable to recognize them as stages of differentiation of the same neoplastic process. Differentiation is the greatest fundamental quality of tumors. Whether the component cells are fully differentiated or not determines whether it is malignant or benign. Upon the stage or degree of differentiation depends the degree of malignancy and of radiosensitivity. All primary lung cancers probably arise in the wall of the bronchus and will be referred to as "bronchiogenic." They are theoretically derived from an immature parent cell in the bronchial wall, the presence of which represents a defect in cell development. In its completely undifferentiated form it is a small spherical cell. As it proceeds along the pathway of differentiation this cell becomes elongated, oval and even spindle-shaped. Neoplasms derived from cells in this zone of differentiation represent the so-called "oat-cell" tumors or poorly differentiated carcinoma and will henceforward in this discussion be referred

to as *undifferentiated carcinoma*. At a certain point differentiation proceeds in two entirely different directions. The most frequent course is toward the formation of squamous epithelial cells and, considering the embryological development of the bronchus, constitutes a reasonable biological expectation. The other direction is toward the formation of columnar cells arranged in glandular or papillary patterns. These cells may be mucin-secreting. In a few the pattern resembles alveolar arrangement in the lung and hence the term alveolar carcinoma is occasionally encountered. However, the group, despite minor variations, should be termed adenocarcinoma. Squamous cell and adenocarcinoma are quite similar in their pathological and clinical behavior and could very well be considered together as *differentiated carcinoma*.

In support of the belief as expressed by Weller in 1929 that classification of bronchiogenic carcinoma is dependent upon differentiation, it is not rare to find more than one stage of differentiation in the same tumor or to find that differentiation into both squamous cell and adenocarcinoma has occurred side by side. The lesions encoun-

PRIMARY CARCINOMA OF THE LUNG—BRINES

TABLE I. COMPARISON OF THE TWO MAIN TYPES OF BRONCHIOGENIC CARCINOMA

<i>Undifferentiated (Oat-Cell)</i>	<i>Differentiated (Adeno- and Squamous)</i>
1. Small lesion usually located near hilum.	1. A more bulky lesion frequently some distance from hilum in center of lobe.
2. Necrosis rare.	2. Necrosis frequent, producing cavitation.
3. Usually metastasizes early.	3. Frequently no metastasis.
4. Fairly radiosensitive.	4. Comparatively radioresistant.
5. Not usually adaptable to surgical treatment.	5. Surgical treatment applicable in some cases.
6. Often infiltrates or metastasizes to outlying portions of same lung.	6. Usually remains localized but aspiration metastasis to opposite lung may occur.
7. Rarely ulcerates bronchial mucosa.	7. Usually ulcerates bronchial mucosa.
8. Infiltrates bronchial wall and peribronchial tissue producing stenosis.	8. Proliferates into bronchial lumen causing obstruction (and atelectasis).
9. Bronchoscopic biopsy frequently impossible.	9. Bronchoscopic biopsy usually easily obtained.

tered in this series have classified as follows:

Undifferentiated	31
Squamous cell	27
Adenocarcinoma	6
Combined forms	5
Total	69

There are important differences between differentiated and undifferentiated bronchiogenic carcinoma which affect both diagnosis and treatment. These differences are tabulated in Table I. The importance of a bronchoscopic biopsy to determine cell type can readily be seen.

The distribution of metastases in thirty-five autopsied cases is given in Table II. The tracheobronchial lymph nodes are most frequently involved. In six of the thirty-five cases no metastasis was demonstrable; five of the six were differentiated carcinoma (adeno- or squamous cell). In this group surgical treatment should receive more serious consideration. While undifferentiated carcinoma is more radiosensitive and should be successfully treated by irradiation, espe-

cially deep x-ray therapy, this advantage is lost by the fact that metastasis in this type is usually widespread and occurs early. Metastatic tumors in the brain and bones have been operated upon as primary tumors.

All bronchiogenic carcinoma can be classified into differentiated and undifferentiated carcinoma. A more elaborate and complicated classification is unnecessary.

TABLE II. METASTASIS
(IN 35 CASES AUTOPSIED)

Mediastinal lymph nodes	26 or 77%
Liver	18 or 52%
Abdominal lymph nodes	9 or 24%
Kidney	7 or 20%
Adrenals	4 or 12%
Opposite lung	4 or 12%
Brain	3 or 8.5%
Bone	}—each 2 or 6%
Pancreas	
Spleen	
Thyroid	1 or 3%
No metastasis (differentiated)	5 or 14%
No metastasis (undifferentiated)	1 or 3%

TREATMENT OF CARCINOMA OF THE LUNG*

T. LEUCUTIA, M.D.
DETROIT, MICHIGAN

In the treatment of pulmonary cancer, two procedures occupy a prominent part: the surgical procedure, consisting of lobectomy or even complete pneumectomy, and the radiologic procedure, consisting, as a rule, of a combination of roentgen therapy and intrabronchial application of radium.

The surgical procedure is a comparatively recent one, and further accumulation of statistical data is necessary before any conclusions can be drawn as to its merit. Even so, the discussion as to its value exceeds the scope of the present paper, and therefore it must be left in more competent hands.

The radiological procedure has now been used more or less routinely for a period of fifteen years. Due to development in technical application and especially in the construction of more powerful roentgen apparatus, certain evolutionary changes have occurred from time to time, resulting in improvement of the clinical results but, as a whole, the procedure has remained unchanged as far as the fundamental principles are concerned. Thus in irradiating a pulmonary neoplasm, especially, two factors must be taken into consideration: first, the primary response of the tumor cells to radiation, and, second, the effect of the radiation on the neighboring structures such as the lung. While the first is concerned chiefly with the radiosensitivity of the individual tumor, the second factor is of paramount importance because of the possibility of producing a permanent fibrosis in an organ of vital capacity.

The majority of the primary intrathoracic carcinomata are of the desmoplastic type and consequently they possess a limited radiosensitivity. This means that rather large doses must be administered at the site of the lesion to produce complete destruction of the tumor cells. In the early cases, the repeated application of deep roentgen therapy and the intrabronchial use of radium sometimes leads to healing. In the advanced cases, however, a temporary reduction in the size of the tumor is all that can be expected. Because of this very slow response to irradiation, our attention often must be centered chiefly on the second factor, that is, on the effect on the surrounding structures. The fact that the irradiated lung responds with fibrosis is of considerable aid in this respect, and we have repeatedly succeeded in bringing about an arrest of very

extensive carcinomata lasting for a period of several years simply by administering a dose large enough to produce a permanent fibrosis of the lung irradiated.

In conforming with the above fundamental principles the method of procedure in treating a pulmonary carcinoma by means of irradiation is as follows: if the carcinoma is localized and not too bulky, its area, as well as the adjacent lymph nodes, is included within the irradiated volume and the cross-firing is so directed as to leave as much as possible of the normal lung outside of the radiation fields. To be able to produce such a situation, it is desirable to make use of very penetrating roentgen rays which permit the administration of a large dose at the site of the lesion. In this respect, the so-called supervoltage roentgen therapy has a decided advantage over the deep roentgen therapy, and this no doubt accounts for the improvement in the results during the past three or four years since the former method is being used. A further increase of the dose is obtained by the intrabronchial application of radium tubes or needles, which are placed directly opposite or around the primary carcinoma so as to produce a more efficacious radiation effect. This entire procedure, if localized to a comparatively small area within the thorax, may be repeated for one or two additional series at intervals of two to three months with safety until a complete destruction of the carcinoma has occurred. If the tumor, however, is more bulky, invading rather large parts of the lung, the intrabronchial application of radium appears futile and in such instances our aim must be to produce a complete fibrosis of that part of the lung, or even of the entire hemithorax by resorting to external roentgen therapy alone.

The following complications may arise as the result of intensive irradiation:

*Read before the Section on Radiology of the Michigan State Medical Society, Detroit, September 23, 1936.

CARCINOMA OF THE LUNG—LEUCUTIA

1. *Hemorrhage.* As is well known, hemorrhage forms one of the most frequent fatal issues of all pulmonary neoplasms. Following radiation therapy, due to the destructive effect of the rays, an increased danger of hemorrhage exists for a period of three to four weeks. Later, however, after the onset of fibrotic changes the danger of hemorrhage is reduced to a minimum.

2. *Rupture of the lung.* In comparatively rare instances, the necrosing of a tumor due to the effect of radiation may result in rupture of the lung with consecutive pneumothorax. Such a complication does not represent a very serious sequela, the pneumothorax, as a rule, absorbing spontaneously.

3. *Fibrosis of the lung.* This change always occurs following the administration of a large dose of roentgen or radium rays and therefore it is important that the irradiation be limited over a volume as small as possible. If, through unnecessary cross-firing of both lungs, a diffuse fibrosis of the entire lung parenchyma should follow, such a complication might lead to a very disastrous outcome. A complete fibrosis of one hemithorax has been well supported in our patients over a long while, the longest observation now dating for fifteen years.

A few case reports are included in brief résumé, merely to illustrate the method of procedure.

Case 1.—J. G., male, age 44. During the winter of 1925, the patient developed a dry, hacking cough and repeated attacks of small hemoptyses. In April, 1926, roentgenographic examination revealed atelectasis in the right apical region and bronchoscopic examination made soon afterward by Dr. Chevalier Jackson showed that there was an obstructive tumor of the right upper main bronchus with complete occlusion, accounting for the atelectasis. A diagnosis of carcinoma was made clinically, and no biopsy was thought necessary. The patient has had two series of deep roentgen therapy in May and July, 1926, with rays obtained with 200 kv. equiv. (1 mm. Cu) and a dose of 130 per cent SUD. A disappearance of the lesion with complete clearing up of the atelectasis followed and the patient continued to enjoy normal health until September, 1934, when he died from a cardiovascular disease. There was no evidence of recurrence of the carcinoma at the time of death.

Case 2. H. W., male, age 31. During the early spring of 1929, the patient developed several hemoptyses and some dry, hacking cough. A bronchoscopic examination made in March, 1929, revealed a papillomatous growth of the right main bronchus from which a biopsy was taken. The microscopic report was that of a small oat-cell carcinoma. The lesion was so small that it could not be detected on roentgenographic examination. It was decided to use deep roentgen therapy, cross-fired over the root of the right lung, and intrabronchial radium. The roentgen therapy was carried out with rays obtained

with 200 kv. equiv. (1 mm. Cu) and the dose was calculated so as to reach 110 per cent SUD at the site of the lesion. The radium was placed in the form of a tube intrabronchially opposite the lesion, the dose being 350 mg.-hrs. The irradiation as a whole was repeated for two series, the first being given in May, 1929, and the second in July, 1929. Soon after the completion of the second series, the patient made a full recovery and has remained well. Repeated checkup bronchoscopic examination failed to reveal evidence of recurrence of the carcinoma.

Case 3. F. Y., male, age 40. In November, 1931, the patient developed a non-productive cough which later was associated with slight elevation of temperature. Roentgenographic examination made in February, 1932, revealed the presence of a small tumor in the right hilar region and a secondary infection extending over the area of the right lower lobe. Bronchoscopic examination made soon afterward showed that the tumor originated from the right main bronchus. A biopsy was taken and the microscopic report was that of a very malignant small oat-cell carcinoma of the bronchus. Two series of radiation therapy were administered, the first in March, 1932, and the second in June, 1932. On each occasion, a combination of deep roentgen therapy and intrabronchial radium was used. The deep roentgen therapy was carried out with 200 kv. equiv. (1 mm. Cu) and the dose amounted to 110 per cent SUD at the site of the lesion. The radium was applied in the form of a suitable tube which was placed directly opposite the lesion, the dose amounting to 600 mg.-hrs. Soon after the second series of treatments, there was disappearance of the carcinoma, with complete clearing up of the secondary infection of the right lower lobe area. Repeated bronchoscopic examinations since then have failed to reveal any evidence of recurrence and the patient is enjoying normal health at the present time.

Case 4. F. W., female, age 36. The patient had a dry hacking cough for only three weeks. Bronchoscopic examination made the beginning of June, 1934, revealed a small tumor on the posterior wall of the right main bronchus, a portion of which was removed for biopsy. The microscopic findings were those of cylindrical cell carcinoma. Roentgen examination of the chest showed increased infiltration at the right root of the lung. Two series of radiation therapy were given, the first in June, 1934, and the second in October, 1934. A combination of supervoltage roentgen therapy and intrabronchial radium was used on each occasion. The former was carried out with rays obtained with 500 kv. equiv. (7 mm. Cu) and the dose amounted to 130 per cent SUD at the site of the lesion. The radium dose was 500 mg.-hrs. Soon after the second series of treatments, all the symptoms disappeared and the patient has regained her normal health. Repeated checkup examinations since then have shown no evidence of recurrence or metastases of the carcinoma. A slight amount of fibrosis of the right lung has developed as the result of the irradiation.

Case 5. F. A., female, age 38. The patient developed a cough with moderate expectoration in 1926. Repeated roentgen examinations of the chest revealed the presence of bronchiectasis. In April, 1934, the cough became more marked and there was some hemoptysis. Bronchoscopic examination made in June, 1934, revealed a tumor of the right main bronchus which on microscopic examination proved to be cylindrical cell carcinoma. A phrenicectomy was done in June, 1934, for the treatment of the bronchiectasis and a week later radiation therapy was instituted. This was carried out with a combination of supervoltage roentgen therapy and intrabronchial radium. The quality of the roentgen rays was that obtained with 500 kv. equiv. (7 mm. Cu)

and the dose was calculated so as to amount to 130 per cent SUD at the site of the lesion. The radium dose was 500 mg.-hrs. Two series of treatments were given as a whole, the first the end of June, 1934, and the second in October, 1934. The patient rapidly regained her normal health, the cough has completely disappeared and repeated examinations since that time showed no evidence of recurrence of the carcinoma. A slight amount of fibrosis of the right lung has developed as a result of the irradiation.

Case 6. H. J. C., female, age 47. During the summer of 1930, the patient developed a dry hacking cough and a gradually increasing shortness of breath. She was examined at various institutions and a diagnosis of right sided pleural effusion was made. On December 16, 1930, the pleural effusion was aspirated and an artificial pneumothorax produced for roentgenographic diagnostic purposes. Stereoscopic films revealed the presence of several nodules scattered throughout the surface of the right pleura. Soon afterward, an enlarged gland developed in the right axilla and this was removed for biopsy. The microscopic report was that of an advanced medullary carcinoma. After numerous other clinical investigations, it was decided that the primary lesion was within the chest, most probably originating from the right pleura, and treatment was started on this basis. A combination of colloidal lead therapy, administered intravenously, and deep roentgen therapy over the right hemithorax was used. The dose was calculated so as to be large enough to produce a complete fibrosis of the structures of the right hemithorax. The quality of the roentgen rays was that obtained with 200 kv. equiv. (1 mm. Cu) and the dose amounted to 150 per cent SUD throughout the irradiated volume. The first series of treatments was given in December, 1930,

and the second in February, 1931. The patient made a slow but gradual recovery and had regained her health by the spring of 1931. A complete fibrosis of the structures of the right hemithorax has developed. Periodical examination since that time revealed that the lesion remained well controlled. In September, 1932, a destructive process was discovered involving the anterior end of the 7th rib on the left side and a similar process in the left ilium. It was assumed that these lesions represented a metastatic invasion of the carcinoma and therefore a third series of treatments was given in September, 1932, and a fourth series in January, 1933, over the metastatic areas. There was a very satisfactory response. Checkup examinations made between 1933 and 1935 showed no evidence of new manifestation of the carcinoma and the patient continued to enjoy good health.

Radiation therapy, in the form of roentgen and radium therapy, constitutes a powerful agent in the treatment of pulmonary neoplasms. A tabulation of nearly 100 cases treated in the Radiologic Department of Harper Hospital shows that a five-year survival has been obtained in 8 per cent of the total cases and that in another 10 per cent the survival amounted to from two to five years. Obviously these figures are still very low, but if one considers that until now the mortality has been 100 per cent, there can be no doubt that some progress has been achieved in the control of this very fatal disease.

CANCER OF THE LUNG: HISTORICAL AND MEDICAL ASPECTS

WILLIAM M. DONALD, M.D.

DETROIT, MICHIGAN

In considering cancer as a whole, reliable statistics show that each day 350 people in the United States die of some form of it. Of this number at least 10 per cent or thirty-five deaths are ascribable to cancer of the lung. In relative frequency it ranks next to cancer of the genito-urinary organs.

Up to 1920, cancer of the lung was constantly being confused diagnostically with tuberculosis of the lung and with bronchiectasis. Occasionally syphilis of the lung entered the picture, hence there resulted confusion worse confounded. A short time after this the advent of the x-ray in pulmonary diagnosis commenced rapidly to clarify the picture, and, with bronchoscopy to lend its invaluable aid, diagnostic technic became a fixed quantity, so that the result was a correct evaluation of various signs and symptoms occurring in chronic pulmonary infections.

With these aids in the clarification of the diagnostic picture, a great impetus was given to the study of lung cancer. Up

to about 1920, the disease was practically never discovered except at post-mortem examination. Even yet all too many of the sufferers from lung cancer die without a correct diagnosis being made. Yet with the refinements of diagnostic technic which we now possess, the quota of these unfortunates is growing rapidly smaller and correct diagnoses rapidly greater.

Here in Detroit at the Receiving Hospital,

an average of eleven cases has been reported annually for the last five years. The other hospitals of the city by adding their quota would give a very respectable number of cases known in this one community. The most encouraging part of the picture, both locally and throughout the civilized world, is the marked increase in early diagnoses with a subsequent increase in the frequency of cure.

As a final argument showing the great advance in the interest in and studies of this disease, it may be reported that each year since 1924 the International Medical Annual of Wm. Wood and Co., a recognized authority in the Medical Press, has in its review of diseases, published one or several articles on the diagnosis, pathology and treatment of lung cancer. It would appear, then, that advances and refinements in clinical diagnosis in lung cancer, just recorded, may account in part at least for the startling increase in the reports of cases in the Medical Press, and for the equally startling records in the mortality tables of the nation and of the world.

However, many observers feel assured that there is, in addition to this explanation of the apparent increasing frequency of the disease, a real numerical increase in cases due to some unknown factors. What may these factors be? Here opinions are much divided. Some observers have presented the claims of influenza—that old scapegoat—as an etiologic precancerous activator. These claims, however, lack verification and have met with scant approval.

Again the tremendous increase in cigarette smoking, with the dangers lurking in the chemically treated paper, has been suggested as a possible etiologic factor. And yet, again, others with considerable force have claimed etiologic significance in the finely comminuted tar and asphalt and limestone dust and automobile gases permeating the air of cities and large centers of population. It is certainly true and may be noted here that this disease is an urban disease where these irritant factors are often of major importance. Tar, indeed, has been studied exhaustively in this connection and in relation to skin cancer. Its guilt has not been proven but etiologically it and its allied group are under grave suspicion.

Anatomically, this is usually, in its early stages, a right bronchus disease, localizing

at the junction of a main bronchus with the trachea. This is the "bronchogenic type," the usual type. A much rarer type is found elsewhere in the parenchyma of the lung and represents the "parenchymatous type." Bronchoscopically the location of the growth near the trachea aids markedly in the ease of early examination, and permits usually a biopsy so valuable in doubtful cases. Symptomatically the question is ordinarily a differentiation between dilated bronchi—*i.e.*, a bronchiectasis, a tuberculous lung, and a bronchogenic carcinoma, and at times the differentiation is no easy one. A slight fever, a persistent cough, a marked wasting, middle age, increasing weakness, a sputum often bloody—are symptoms common to all three diseases.

Absence of tubercle bacilli in the sputum will, generally, rule out tuberculosis, while an x-ray examination can be depended on for the elimination of bronchiectasis. 'Tis true that any obstructive growth in a bronchus will produce eventually dilated bronchi and so the issue may be here somewhat clouded, while a bloody pleural serum many at times befog the diagnosis.

With, however, a careful x-ray study, coupled with the invaluable aid of a bronchoscopic view and a possible biopsy, with the pathologist's report, the diagnosis may be considered complete and final. No case should be considered as settled and diagnosed without all of these manifold observations and coördinated conclusions. No disease better illustrates the value of team work; no team work was ever more judiciously applied.

A study by two Englishmen, Dudgeon and Wrigley, during the past year, suggests one other valuable approach to an easy and correct diagnosis. These observers report having found cancer cells in the sputum of 68 per cent of the cases of proven cancer examined. If these findings are confirmed, particularly in the early stages of this disease, the value of this method will be great. A confirmation of the findings by other observers is eagerly awaited.

In prognosis the outlook becomes more encouraging. If we can develop a larger cancer consciousness and optimism in the average doctor, and a better optimism among the laity with reference to early diagnosis and treatment; and if we can discover, as we undoubtedly ultimately will, the chief

exciting causes of cancer of the lung, then we can assuredly render a real service to the patient.

The question of eugenics looms up very large in lung cancer. A thoughtful reference to any of the many recorded cancer families will suggest Mendelian characteristics in the mismating of couples with the dominant cancer characteristics. This, of course, is a matter of education of the doctor in the field, and of the laity.

An allusion to the splendid work done in the control of tuberculosis by the dissemination of knowledge and by the magnificent coöperation of all public health agencies, has resulted in the last thirty years in reducing tuberculosis from its rank as first in the causes of death throughout the world to the position one time occupied by cancer, namely, the sixth place. Today, cancer, being without any aid from the sources which did so much for tuberculosis, has risen rapidly in importance until it occupies second place in the causes of death.

An approach to the subject of cancer and an attack similar to that on tuberculosis should meet with an equally successful result.

In conclusion, let me present to you two illustrative case histories taken from our files in Receiving Hospital.

The first demonstrates one of the difficulties encountered in making a complete examination, and hence an undoubted diagnosis, in certain cases of the disease under consideration. As I have said before, it is my firm conviction that no diagnosis upon cancer is complete without a bronchoscopic pathologic examination including the biopsy. If the work of Dudgeon and Wrigley proves to be conclusive and is generally confirmed, it will be quite possible to eliminate from the examining picture the biopsy and the subsequent pathologic examination and will result in a much simpler diagnostic technic.

The first case occurred in a white man, aged sixty, believed to be of Slavic origin. He was a laborer by occupation and at his work, January 28, 1936, caught a severe cold. He reports that ever since then he has a cough, productive of thick, yellow, odorless sputum frequently streaked with blood. He had constant dull pains in the right chest which were aggravated by coughing. He had no dyspnea, no chills, slight fever (never higher than 101 degrees), no night sweats, but in three months he had lost 15 pounds. The family history gave no important findings and his past history revealed the fact that he had very frequent chest colds since youth. He had never had previous hemoptyses, nor pleuritic pains. His pulse was rapid,

between 90 and 100, and his respiration 20 to 25. He looked emaciated and decidedly unhealthy.

On examination there was a marked diminished excursion in the right chest. His trachea was drawn towards the right, and a marked dullness with distant bronchial breath sounds and bronchophony, associated with crackling râles, were heard over the upper part of the chest. The rest of the lung fields were negative and the sputum was negative for tuberculosis. Under fluoroscopic examination, the right lung showed a dense opaque shadow beginning at the right hilum and extending out towards the periphery. The x-ray diagnosis was carcinoma of the right main bronchus and reference of the patient was reported to the bronchoscopist. Later this gentleman reported the finding of a growth at the junction of the right main bronchus with the trachea, making the lumen of the tube so small that it could not be entered for biopsy. Notwithstanding this setback, the patient was treated as a case of lung cancer and was referred for x-ray treatment.

Further report has not yet been received as to the efficacy of the treatment of this case, but the bronchoscopist insists that the growth will probably and shortly extrude itself into the lumen of the trachea, where it will be easy to perform a biopsy and to make once for all the conclusive diagnosis.

The second case illustrates very well the possibilities that lie in radiation for this disease. The attitude of despair that was so common in regard to it two decades ago has been supplanted, as this case will illustrate, by an attitude of hope.

This patient, a white man, aged forty, policeman by occupation and an American by birth, was admitted to the Receiving Hospital in February, 1932. His illness began with chills, fever and cough, three months before admission. He was confined to bed for one week, when the fever disappeared but the cough persisted. He had a productive odorless purulent sputum which shortly changed to a sputum streaked with blood. He had, shortly after this, a recurrence of chills and fever with an increasing severity in his cough. He was confined to bed a month until his admission. At that time he reported much weakness and a marked loss of weight. His past history was negative as he had always been a healthy man and his family history gave no suggestion of an hereditary or communicable disease. On examination there was disclosed a dullness and diminished fremitus over the right chest with distant bronchial breathing, bronchophony and coarse moist râles in the right base. The remainder of the lung fields was clear.

The x-ray report showed a circumscribed consolidated area over the right base with a small amount of fluid in the pleura and with no cavitation. The bronchoscope showed a fungating mass in the right lower bronchus just below the orifice of the middle lobe bronchus. Beyond this there was found considerable pus. A portion of the mass was removed through the bronchoscope and referred to the pathologist, who reported "an oat-cell carcinoma of the right bronchus."

The treatment given was intensive deep x-ray therapy.

Result: This patient has been under observation ever since the date of admission, 1932. He reports himself as well, working regularly, and symptom-free at present. A very recent radiograph was taken and no evidence of cancer was found. This seems highly reassuring after five years of examination and treatment.

SYNCOPE AS A RESULT OF CIRCULATORY DISORDERS*

GEORGE HERRMANN, M.D.

Professor of Clinical Medicine, University of Texas
GALVESTON, TEXAS

The loss of consciousness, even when transient, and certainly when persistent and profound, is a fear-inspiring symptom complex and demands prompt diagnosis and treatment. A syncopal attack is a matter of serious moment, not only to the afflicted individual himself but often also to others whose safety is jeopardized by the abrupt incapacitation of one in a responsible position. Considerations of this sort prompted me some ten years ago to begin a study of the causes of sudden disability as determined in the Emergency Service in a large hospital, as La Charité in New Orleans. The result of this study, covering the five years 1926 to 1930 inclusive, may be worthy of consideration, even though the data were collected in the Deep South and in part previously reported to the Railway Surgeons.¹ The statistics from a metropolitan center in the South will not list heat stroke cases as one might expect to have in St. Louis or even in Detroit, for such cases are very rare in New Orleans, but may contain cerebral estivo-autumnal malarial comas that are not often seen in the North.

A survey of these statistics with these geographic climatic differences in mind will serve to indicate roughly what are the most common conditions to be suspected in a comatose patient and what lines of investigation are most promising. It is of especial interest to note that cardiovascular disease and neurological conditions, if we include apoplexy, together outrank trauma, the leading single cause of coma.

It is thus evident that medical conditions and particularly cardiovascular diseases, to a discussion of which this clinic is to be devoted, play an important role in the production of unconscious states.

The Clinical Picture

The onset of syncope is usually precipitate, but giddiness, vertigo, weakness, visual disturbances, unsteadiness, restlessness, confused speech, drowsiness, yawning, nausea and vomiting and, in some types of cases, headache, loss of memory, inability to concentrate, aphasia, paresthesia and paralysis may precede the loss of consciousness, convulsions or coma. The adjective "cerebral" may be properly used to designate the type of syncope with which we are dealing, for syncope itself indicates the "cutting off" usually of the blood flow. This may happen in an extremity as in Raynaud's phenomenon and in the heart as in the obso-

letely termed "syncope anginosa," as well as in the brain as "syncope cerebri."

TABLE I

ANALYSIS OF A SERIES OF 500 CONSECUTIVE CASES OF UNCONSCIOUSNESS ADMITTED TO THE EMERGENCY ROOM OF CHARITY HOSPITAL, NEW ORLEANS, 1926 THROUGH 1930

1. TRAUMA—Cerebral Concussion, Contusion, Compression with or without Skull Fracture	167
2. CARDIOVASCULAR DISEASE or DISORDERS	178
Cerebral hemorrhage or thrombosis....	123
Cerebral angiospasm or anemia and cardiac disorders or disease.....	55
3. ACIDOSIS (Diabetes mellitus).....	52
4. UREMIA (Eclampsia)	30
5. MENINGITIS—Meningococcic, Tbc. E-A Malaria	21
6. PNEUMONIA—Pneumococcus	15
7. POISONING—Alcohol, Dope, Barbiturate, Lead, Miscellaneous	18
8. ORGANIC BRAIN DISEASE—Paresis, tumor	8
9. EPILEPSY	7
10. UNDETERMINED	4

The Mechanism

Cerebral symptoms, rarely lasting more than several minutes, are usually the result of defective blood flow to the cerebral cortex. In certain hypertensive individuals the arterioles may become hyperirritable and upon stimulation constrict and obstruct the blood flow, producing areas of cerebral cortical anemia. In such episodes evidences of an angiospastic state may sometimes be seen in similar constriction in the arterioles of the retina. Although this defect may be of local origin, as a rule general circulatory changes and a sudden fall in the systemic blood pressure are present. The critical level of blood pressure to insure adequate circulation in the standing normal individual is between 60 and 70 mm. of mercury. An arteriosclerotic cerebral vascular system

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requires a higher systemic pressure to maintain sufficient blood flow into the cerebral vessels.

The fall in blood pressure may be the result of either (1) a primarily decreased inflow of blood to the heart, or (2) primarily a decreased output from the heart, with in either case a lowered systemic pressure.

1. The *venous return to the heart* may be impaired following splanchnic vasoparesis with engorgement and active dilatation of this great vascular bed to the point where much of the patient's blood volume is static in the splanchnic venous sinusoids, the systemic pressure drops and cerebral anemia results. This is the mechanism of the usual or ordinary faint.

Shock either of psychogenic or emotional, traumatic or physical, or of toxic origin dams blood in the periphery and reduces the venous inflow. A *postural* or *orthostatic hypotension* in which the reflex peripheral vasoconstriction upon arising is not effective may be the cause of the syncopal attacks. *Vasodilating drugs* such as amylnitrite, nitroglycerine, and sodium nitrite may act similarly. The *hypokinetic* type of *heart failure* such as one encounters in overwhelming infections and hemorrhage, as well as in nitrite poisoning and in medical and surgical shock, may so diminish the blood supply to the brain as to give rise to syncopal attacks.

2. In the other great group of cerebral anemia cases a *decrease of the outflow of blood from the heart* causes a critically low blood pressure. Among the less serious causes of low cardiac output are the cardiac mechanism disturbances of unusually rapid rates and consequently short diastolic periods such as paroxysmal tachycardia, fibrillation and flutter. The paroxysms of these disorders as a rule are accompanied by a sharp drop in the systemic blood pressure.

Abnormally slow heart action likewise, especially when it appears suddenly as in the sino-auricular standstill of the carotid sinus reflex origin or auricular-ventricular block with ventricular asystole or ventricular fibrillation precipitating Adam-Stokes attacks all cause serious drops in the blood pressure that so reduce the cerebral circulation as to cause syncope.

A fleeting giddiness or vertigo or faintness may result from an asystole of 2 to 3

seconds duration. A momentary swoon usually follows 10 to 20 seconds of ventricular standstill, while longer periods of suspension of heart action results in syncope, convulsions and coma after 90 to 120 seconds.

Organic obstruction to blood flow out of the heart as result of calcareous disease at the root of the aorta, or valvular stenosis and regurgitation or aneurysm or arteriosclerotic degeneration and hardening of the cerebral vessels are definitely predisposing to cerebral anemia. A slight drop in the blood pressure incident to any one of the many causes outlined would precipitate a syncopal attack. As pointed out by Marvin² the carotid sinus reflex is frequently hyperactive in the presence of such vascular pathology and therefore cerebral episodes are common in aged individuals. A ball valve thrombus in a mitral funnel may obstruct the flow into the left ventricle and cause a drop in blood pressure to the critical levels.

A Diagnostic Approach

In the study of any patient in coma or recovering from a syncopal seizure (1) a swift general survey is in order, followed by (2) neurological and (3) cardiovascular examinations.

1. *General survey.* The patient's *color* should be noted with particular reference as to whether there is a rapidly increasing pallor or flushing or cyanosis or beads of perspiration about the facies. A search should be made for *evidences of trauma*, scalp lacerations, bruises, depressions or fractures of the skull and attempts should be made to determine whether the trauma was administered before the faint or after the patient fell out. Burns on the lips or mucous membranes or a *lead line* on the gums may give the clue to the cause of a coma (Marshall).

Odors such as the aroma of alcoholic beverages, acetone or other poison should be investigated. If there is suspicion of any odor the gastric content should be removed and examined.

The character of the *respiration* should be noted, whether slow, deep, sighing or Kussmaul of Cheyne-Stokes or Biot's irregular breathing may be present.

Neurological Examination

The eyelid reflex of defense closure should be tried on each side and in vari-

ous quadrants of the visual field, the pupils should be examined for size, equality and light reaction. Conjugate deviation of the eyes to the opposite side on forced moving of the head indicates oculomotor paralysis. Supra-orbital pressure normally elicits equal facial muscle response, the lower eyelid moves upward. Examination as to whether there is a loss of conjunctival or corneal reflexes should be carried out as well as an ophthalmoscopic study of the ocular fundi for angiospastic retinal arteries or sclerosis. The discs should be examined for papilledema and the retinae for exudate.

A general clamminess of the skin may be noted. Frothing at the mouth and biting of the tongue are common in epilepsy. The blowing out of one cheek or the drooling of saliva indicates facial paralysis. By raising and allowing to fall each of the extremities, the tonus or flaccidity of the paralyzed side can be made out. In a severe state of collapse the flaccidity is general and sphincter control may be lost or general hypertonic postures may be assumed. The superficial abdominal and cremasteric and the deep reflexes may be absent, exaggerated, symmetrical or unequal. The tonus reflex of the neck, the Brudzinski and Kernig's signs may be present. The involuntary reflex thumb extension and opposition on finger flexion (Mayer-Stiefler) normally present persists in hysteria but disappears in cerebral paralysis and epilepsy in which the Babinski appears while the Achilles tendon, pupillary and corneal reflexes may not be elicited.

Cardiovascular Examination

The signs of greatest significance are usually to be found in the study of the heart action and blood pressure. A disturbed cardiac mechanism may result in a rapid or slow heart rate or a transient total absence of the heart beat. Auscultation may reveal the presence of murmurs of an acute or chronic valvulitis. The blood pressure, in instances of cerebral vascular accident, may be high or may be alternating but usually temporary or permanent hypotension is to be found.

Discussion of the Clinical Analysis of Cardiovascular Causes of Syncope

Table I emphasizes the importance of cardiovascular diseases or disorders as causes for unconsciousness. A more de-

tailed follow-up study of this group seemed desirable and was carried out. The results of the further analysis are set forth in Table II.

It will be seen that *local circulatory disturbances* involving the cerebral arteries dominate the group and stress the importance of blood pressure, eye grounds and neurological examinations.

TABLE II
FURTHER DETAILED STUDY OF THE
CARDIOVASCULAR SYNCOPE GROUP

Local Circulatory Disturbances	
Cerebral Hemorrhage	98
Cerebral Thrombosis	23
Cerebral Embolism	2
Cerebral Angiospasm	2
Encephalopathy Hypertensive	8
General Circulatory Disorders with Low Blood Pressure	
Massive Pulmonary Embolism (Cor Pulmonale)	2
Dissecting Aortic Aneurysm.....	1
Rupture of Heart.....	1
Extensive Coronary Thrombosis.....	1
Ruptured Aortic Valve.....	1
Ruptured Aortic Aneurysm.....	4
Aortic Stenosis—Calcareous	3
Mitral Stenosis—Ball Valve Thrombus.....	1
Cardiac Tamponade—Hemorrhage 3—Ac. Pericarditis 1	4
Ordinary Splanchnic Faints—Cerebral Anemia	12
Postural or Orthostatic Hypotension.....	1
Sudden Cardiac Mechanism Derangements	
Carotid Sinus Attacks—Vagotonia.....	6
Paroxysmal Auricular and Ventricular Tachycardia	2
Paroxysmal Flutter or Fibrillation.....	2
Paroxysmal Ventricular Fibrillation.....	1
Heart Block—Adams-Stokes Syndrome.....	3

The general circulatory disorders with low blood pressure account for relatively few of the attacks of syncope. Nevertheless the recognition of each disorder in the miscellaneous group of causes of syncopal states is desirable.

Hypotension and cerebral anemia sometimes result from such acute vascular accidents as pulmonary embolism, dissecting aortic aneurysm, coronary thrombosis, rupture of an aneurysm or of the heart or of an aortic cusp.

A few instances of aortic stenosis and calcareous disease and mitral stenosis with a ball valve thrombus or cardiac tamponade of traumatic or hemorrhagic origin, or as a result of acute pericarditis will account for occasional instances of syncope. Such a survey indicates the necessity for a general cardiac as well as a general vascular examination in every patient who has a history of faints or fits.

Cerebral anemia as the result of an ordinary splanchnic faint, although a very common condition, is seen in the emergency room of a general hospital only occasionally. Postural or orthostatic hypotension is an occasional cause of cerebral anemia.

All the disorders thus far mentioned are usually accompanied by a sharp drop in the systolic blood pressure with concomitant cerebral anemia of such grade as to cause unconsciousness.

Cardiac Mechanism Derangements

Sudden cardiac mechanism derangements although really not very common causes of coma occur with sufficient frequency and at times with such dramatic severity and are therapeutically so promising that prompt proper diagnosis and emergency treatment are often necessary to forestall a catastrophe. Inasmuch as many of these pathophysiological causes of cerebral syncope are comparatively benign or innocuous conditions and most of them amenable to simple specific treatment, some emphasis on the differentiation and management of the mechanism disturbances may be worth while. Certain clinical characteristics and the usual favorable response to therapeutic procedures of these disorders even though quite well and generally known warrant recapitulation from time to time.

Sinus Bradycardia and Standstill Carotid Sinus Reflex Disturbances

Abnormally active or over active carotid sinus reflexes are fairly frequently recognized, while an abnormally inactive reflex is much less often diagnosed. The so-called vagotonia or vagus faint or sinus block or sino-auricular standstill, the reflex slowing or momentary suppression of the heart action are now generally considered under the term carotid sinus episodes. The heart is usually slow to begin with in the patient subject to carotid sinus attacks and in such a temporary exaggeration of vagus tone produces the sino-auricular standstill and an asystole of the whole heart. The asystolic period usually prolonged to the point of a blood pressure drop to the critical level, results in cerebral anemia and transient unconsciousness intervenes.

The diagnosis of the condition depends on elicitation of an abnormally active carotid sinus reflex upon slight or moderate pressure applied at the bifurcation of the

right common carotid. In vagotonics this maneuver will result in a slowing of the heart and a prompt and complete suspension of the systole for a brief period. An asystolic period may last as long as 13 seconds. Pressure on the eyeballs will sometimes reproduce the sinus bradycardia and standstill. The condition is fairly commonly encountered and I cannot refrain from a brief description of a few striking cases.

Case 1.—A good young woman brought her middle aged husband to me for examination because of peculiar fainting attacks. She related that after the onset of the first winter of married life he began to act peculiarly at the time of his departure from home each morning. To be more specific she said that he actually swooned each morning while she was administering the usual parting unction that newlyweds indulge in. Upon further questioning it developed that she had a habit of drawing his overcoat collar tightly about his neck, clinging with her hands to the lapels, bringing them closely together as she placed a goodbye kiss upon his pale lips. Her firm grip on the collar of his overcoat saved him from falling upon the threshold.

He could of course give no adequate explanation for his action nor could he see any reason for his faint. It was merely a case of over-administration of the final rites of departure which brought pressure to bear upon the irritable carotid sinus which in turn precipitated the asystole and the accompanying cerebral anemia. The attack could be reproduced at will at the heart station and electrocardiographic tracings were made. Re-education of the young wife and the regular use of small doses of 5 to 10 minims of tincture of belladonna three times a day succeeded in abolishing the disturbing reaction and they lived happily ever after.

Case 2.—Another patient related some instances of attacks of fainting that recurred regularly every time he got into a certain barber's chair. He began to feel that this barber had some sort of supernatural influence over him or would hypnotize him or was up to some such mischief. He had tried other barbers in the same shop and had not had similar experience. He was quite surprised to find that his physician could reproduce the spell and at first he was quite suspicious of this occult power. On close questioning he admitted that the barber worked just like any other barber but on further investigation it was found that the fainting always occurred when the barber began stroking the sides of his neck after shaving him and furthermore that the barber was unusually vigorous in the massage of the neck of his patrons. The result of the strong application of pressure to the patient's susceptible carotid sinuses was that the vagotonic reflex was set up and cardiac standstill was inaugurated. A few suggestions to the barber which resulted in the modification of his technic, along with administration of 1/150 grain of atropine three times a day prevented a recurrence of the troubles and reestablished the barber in the patient's good graces.

Case 3.—The third patient was a petty gangster on Treasure Island who had followed somewhat in the footsteps of Jean LaFitte and actually had a rendezvous down the island near the pirate's old oak grove on Galveston Bay. The F-B-I or G-men were apparently giving him the "jitters" but what worried him most was a giddiness and faintness

and actual "falling out" attacks. These occurred on glancing quickly to the side or back, which he was doing repeatedly, perhaps as a defense reaction. Likewise backing his car out unusually rapidly he frequently had an attack of vertigo and sometimes syncope.

After hearing his story dramatically told and surveying his makeup it was quite obvious what the source of his trouble was. He was a member of the old school and still wore the high stiff collars that bound his neck closely and exerted considerable pressure upon his right carotid sinus when he turned his head sharply to the right or backward; as it was his habit to do.

Modernization of his wearing apparel to soft collars and the administration of 1/10 or 1/16 of a grain of novatropine, methatropine or homatropine bromethylate, three times a day controlled his severe attacks. Fortunately for the community, he also had physical signs of aortic stenosis and calcareous disease at the root of the aorta and of the coronary arteries, conditions commonly associated with the exaggerated carotid sinus reflex (Marvin). Similar auriculo-ventricular conduction disturbances later developed that were controlled by larger doses of novatropine. Myocardial insufficiency promptly developed and incapacitated him and finally bore him to his reward.

Tachycardia

Simple sinus tachycardia rarely is the cause of cerebral anemia; it, however, is the common accompaniment of the ordinary splanchnic fainting. The syncope of orthostatic hypotension is usually accompanied by a slow or normal pulse rate, and is thus differentiated. The simple tachycardia rarely presents a heart rate above 140 and it tends to slow gradually and is sometimes slightly irregular after carotid sinus pressure. The patient may complain of some palpitation and nausea just before the onset and at the recovery from the fainting.

In the splanchnic faint with simple tachycardia the blood pressure drops often to the critical level of 80 or 70 mm. of mercury and remains there even with the patient in the prone position and until recovery begins to take place (and before recovery even with the head down the pressure does not go above normal), while in the orthostatic hypotensive case, the falling blood pressure occurs only during standing. The drop can be promptly interrupted by assuming the horizontal position, at which, especially when the head is lowered, the pressure characteristically rises to levels above normal, while the pulse rate does not change in most cases.

The treatment of both types in the acute stage is about the same; placing the patient in the horizontal attitude, lowering the head, dashing cool water, or giving the patient a drink will usually restore him. The postural or orthostatic hypotension faint

may be helped by an abdominal binder to prevent the drainage of blood into the large venous channels when the patient assumes the upright position. Ephedrine sulphate may be given in increasing doses, $\frac{3}{8}$ to $\frac{3}{4}$ grain, or benzedrine sulphate $\frac{1}{6}$ to $\frac{1}{3}$ grain doses may be effective in maintaining blood pressure above the critical level and in preventing the cerebral anemia upon assuming the upright position.

Paroxysmal Tachycardia

The rapid heart action which in the case of paroxysmal tachycardia rises to levels of 160 to 180 per minute are of such grade as to be in themselves factors in the reduction of the systolic blood pressure, but again the drop is rarely sufficient to cause in itself a cerebral anemia. Occasionally, however, especially in elderly individuals with sclerotic cerebral vascular beds, syncope may result in a paroxysm of tachycardia. Giddiness and dizziness are quite common, as in any cerebral anemia, and a sense of general weakness is complained of during the paroxysm by most of the subjects.

The paroxysm consists of a rapid succession of heart beats which have their point of origin outside the usual pacemaker. Usually the ectopic focus is in the auricular musculature and at times in the junctional tissues but more seriously in the ventricular wall. The rapid heart action is usually sudden in onset and sudden in offset. There is often no discernible precipitating factor but occasionally an emotional upset or unusual physical strain or a surgical operation, particularly one upon some part of the genito-urinary tract, is likely to precipitate a paroxysm. The paroxysm may last for only a few beats but usually it continues for several minutes, occasionally for hours, days, weeks and even months. It is rare for any paroxysm other than one of junctional origin to last longer than a day.

The clinical differentiation according to the origin cannot be made with certainty except with electrocardiographic studies. The rates are high, usually between 160 and 260, and the rhythm is usually perfectly regular, especially in the auricular type, while in the ventricular tachycardia a variation of 6 to 8 beats counting from minute to minute is not uncommon, and fairly characteristic. The junctional and ventricular types are far more serious than the auric-

ular paroxysmal tachycardias, for the junctional type is long and the ventricular type is usually associated with serious myocardial damage of the ventricle and cardiac infarction following coronary thrombosis.

Paroxysmal auricular tachycardia often occurs in psychically unstable individuals. Worry and fear may be a great factor in the aggravation of the condition as illustrated by the following case.

Case 4.—A professor from one of our State colleges, aged 50, was sent to me because he was unable to get out of bed without precipitating an attack of racing heart action and fainting and during each day he had from 10 to 12 paroxysms of rapid action. He had been put to bed for a month previously after suffering a very severe syncope attack in which he had become quite cyanosed and from which he did not recover consciousness for 12 hours. The delayed recovery was probably in part due to the opiate that was administered. In spite of digitalization and aminophyllin therapy he continued to have attacks even while at rest in bed. He insisted that he had no worries, but I could not believe this because of the fact that he was a professor with a family of five children, and had received a 30 per cent salary cut. He later admitted that he had been worried some about his condition, particularly when he did not recover completely, even at rest in bed and upon heart drugs. He had had two previous attacks of syncope and several paroxysms of tachycardia which lasted as long as twelve hours and each of which occurred when he had had a severe emotional upset.

The physical examination showed an anxious individual who presented no definitely pathognomonic signs of heart disease. He did, however, present a rapid pulse of 100 to 120 with frequent auricular premature contractions. His blood pressure averaged 136/77 in both arms at rest in bed, while his cardiac mechanism was regular, while during a paroxysm it dropped to 80/60. The heart sounds, while rapid and tic-tac in character, presented no suggestion of a gallop rhythm. The aortic second sound was slightly accentuated and frequent auricular premature contractions disturbed the sinus tachycardia. Electrocardiograms confirmed these findings and showed low voltage but no pathognomonic signs of myocardial disease.

In view of these findings of a persistent tachycardia I was not absolutely certain that there was no myocardial disease but his local physician had digitalized him and given aminophyllin without relieving him. I therefore concluded that most of his trouble was psychogenic and advised him to get up each morning and remain up. He did this upon my order and fell out regularly each morning and had to be gathered up and put into a chair. After several days of this, I questioned in my own mind my conclusion, but with the patient I displayed only confidence in my decision. Finally after the fifth day the fainting attacks did not recur on arising. This was a victory and the patient with his confidence reestablished in himself and his fear of the attacks allayed has carried on his routine duties for two years with only three pairs of mild paroxysms of tachycardia, each of which promptly stopped after he stretched out horizontally for a few minutes.

Paroxysmal ventricular tachycardia is less common and of more serious moment,

and often follows myocardial infarction. The blood pressure sometimes drops so low that it cannot be determined during a paroxysm.

Case 5.—A diener in the pathological institute, aged 53, suffered a severe attack of pain in the upper chest at about 2 o'clock in the morning. He was brought into the hospital at 5 a. m. in extremis. He had lapsed into unconsciousness, an ashy pallor and a clammy cyanosed skin were noted. He was grunting and groaning with respirations at the rate of forty per minute and quite short and jerky.

His pulse was small, rapid, weak and thready with a rate of 190 per minute and the blood pressure 115/90. The heart was apparently not enlarged and no murmurs were heard, the sounds were weak and embryocardiac. Bubbling râles were heard throughout the chest. The liver was not definitely enlarged and no ascites or edema was present.

Electrocardiograms showed a characteristic ventricular tachycardia, the paroxysms of which lasted for several hours. The heart rate dropped to 120 and normal mechanism with characteristic S T interval and T wave changes or coronary thrombosis were recorded. Orthopnea, cough and the expectoration of frothy blood-tinged sputum were troublesome after the paroxysm subsided. After 24 hours a second paroxysm began and the patient lapsed into unconsciousness and died after two hours. We should have administered quinidine sulphate in 5 grain doses every hour for as many as 7 or 8 hours until the paroxysms were stopped and prevented.

Treatment of Paroxysmal Tachycardia

The carotid sinus reflex is promptly effective, stopping the paroxysm within one beat in about half the cases. The other half of the cases show no effect whatsoever upon the rate. In other words there is a complete change-over, or nothing, as result of this procedure. In some individuals the injection of an opiate or the taking of morphine by mouth allays the anxiety and the paroxysm spontaneously stops. If the patient's life or the life of an extremity is in danger by prolongation or persistence of the high rate and low blood pressure, intravenous injections of 10 c.c. or more of standardized digitalis preparations has been advocated by Wilson. More recently the subcutaneous injection of 20 to 50 milligrams ($\frac{1}{4}$ to $\frac{3}{4}$ grain) of beta-acetyl-methylcholine (mecholy, Merck) has been found successful as apparently a fairly safe procedure. After injection with this drug the carotid sinus reflex tends to be more effective and to stop the paroxysm.

Junctional tachycardias are most refractory to treatment and may persist for months. I have seen one instance following a septic process in the arm and the condition was present for at least fifteen months, at

the end of which time the patient disappeared from observation and was never heard from again.

Ventricular tachycardias are much more serious, more frequently accompanied by blood exudation, frothy sputum and pulmonary edema, especially when complicating a thrombosis of the anterior descending branch of the coronary with infarction of the left heart. Quinidine by mouth in 5 grain (or 0.3 gram) doses every hour for six or seven doses is often effective in stopping the paroxysm. It has been given intravenously in $7\frac{1}{2}$ grain (or 0.5 gram) doses but it is not without danger.

Paroxysmal Flutter or Fibrillation

Syncope is not a frequent symptom of paroxysmal flutter or fibrillation, nevertheless the conditions are to be considered even though only rarely accompanied by unconsciousness. Vertigo and giddiness are commonly experienced. The paroxysmal auricular flutter may produce a very rapid heart rate—as high as 180 beats per minute. Rarely, however, does it go above this level, but a 1 to 1 block may replace the usual 2 to 1 and a rate of 360 per minute may result. It usually averages about 160 beats per minute. The rhythm is perfectly regular and the blood pressure drops and thus producing symptoms similar to but less severe than those of the tachycardias. There may, however, be more weakness associated with this mechanism disorder.

As a diagnostic characteristic, differing from the tachycardias, besides the lower rate, the carotid sinus reflex is usually temporarily effective, that is, pressure over the right carotid sinus usually slows the ventricular rate very sharply and makes the rhythm slightly irregular. In spite of the persistence of the pressure, however, the rapid regular beat is resumed.

In *paroxysmal auricular fibrillation* the symptoms may be quite similar, but usually the irregularity of the heart is felt by the patient and upon examination it is usually found that the heart rhythm is characteristically absolutely irregular and the rate often considerably above 100, while the pulse rate, though irregular, is considerably less, due to the fact that many of the ventricular beats and the rapid runs generate insufficient pressure in the ventricles to

open the aortic leaflets and the pulsus deficit results.

These conditions very frequently stop without any medication whatsoever, and even in spite of digitalization. Here again, however, quinidine sulphate may be necessary to halt the disorder as it is the most effective measure. Usually a few doses by mouth are sufficient to reestablish a normal mechanism.

Ventricular Disorders and Standstill— Adams-Stokes Syndrome

Paroxysmal ventricular flutter or fibrillation are rarely recognized clinically as the cause of a syncopal attack but they, especially fibrillation, are suspected as the cause of sudden collapse and death in electric shock and angina pectoris. Experimentally and electrocardiographically they have been shown to produce a state where there is no propulsion of blood from the ventricles. The diagnosis may be suggested by the fact that no regular sounds are audible, no pulse is present, sharp vertigo and syncope, and often convulsions intervene, creating a clinical picture that is practically indistinguishable from an Adams-Stokes attack. The interpretation of this rare state can be made only by electrocardiographic studies made during the attacks.

Heart Block

The lesser grades of disturbances of conduction in the A-V bundle may result in some giddiness, vertigo, and some slowing of the pulse and heart rate, which are usually equal. The rhythm may be regular or irregular, depending on the type and grade of the block.

The type of heart block that precipitates a cardiac emergency is usually one that is complete and in which the ventricular muscle is not irritable enough to promptly establish a ventricular pacemaker. In other words, there results a temporary asystolic state in which there are no ventricular contractions to propel the blood into the great vessels and the brain. As a result, the cerebral anemia which occurs produces a sudden vertigo which rapidly passes into syncope and a convulsive state often ensues.

The suspension of ventricular activity may continue for as long as four or five minutes. Some consider possible survival of the patient with resumption of ventricular activity after even eight minutes. At any

rate, the moments of ventricular asystole are precious ones and no one is able to state whether or not the ventricle is again going to contract.

Treatment of Ventricular Standstill

In the emergency, rapid powerful blows over the precordium may be of help in the reestablishment of ventricular activity. Intravenous injections of drugs in the peripheral vessels are of little value because the blood mass is not moving. Injection into an engorged jugular with the patient placed in the upright position, may, by gravitation, successfully be carried into the heart. If these yield no response in a few moments, the heroic introduction of two or three minims of adrenalin directly into the heart muscle is justifiable. In order to accomplish this it is usually necessary to penetrate the ventricular cavity and aspirate some blood into the syringe containing 10 to 15 minims of 1/1000 adrenalin solution and then start withdrawing the needle slowly, injecting as the needle is withdrawn. Large doses are dangerous, for they may produce persistent and fatal ventricular fibrillation.

The chief therapy in these conditions seems to be the prophylaxis by keeping the ventricular muscle irritable with barium chloride or ephedrine or synephrine.

A clinical case that presented Adams-Stokes attacks of heart block and later on paroxysms of ventricular origin might serve to emphasize certain significant facts.

Case 6—J. W. aged 66, had noted shortness of breath on exertion and swelling of the ankles after each day's work for four years. Sixteen months before admission while at work he "fell out" for no known reason. Two months later he had another similar attack and a recurrence was suffered at about the same interval. The last one had occurred one month previous to admission. The patient felt that the sensations experienced in an attack were rather indescribable in detail. He only remembered that he began to feel weak, then get short of breath, dizzy and everything would pass into darkness. He would draw together, shake, and his teeth seemed to chatter and he felt as though he were enclosed in ice. The attacks would last only for a minute or two and upon recovery of consciousness he would feel fatigued, and worn out. He had noted that his pulse was slow and

would become weaker and slower when the attacks came on. He had been taking strychnine in large doses for a year to prevent the attacks.

The physical examination revealed evidences of general arterial sclerosis and chronic pulmonary emphysema. The heart seemed to be somewhat enlarged. The sounds were for the most part faint but occasionally louder beats were heard at irregular intervals, while a dominant regular rhythm seemed to prevail. The rate was slow, 40 beats per minute. The rate did not rise after exercise. No murmurs were heard. The blood pressure was 128/50. Electrocardiograms confirmed the diagnosis of complete heart block.

In order to increase the irritability of the ventricular pacemaker and prevent a recurrence of the Adams Stokes seizures, which had previously occurred, the patient was placed on barium chloride, 100 mgm. three times a day. After about two weeks of this therapy the patient began to have more severe and more frequent Adams-Stokes episodes, several times a day. Electrocardiograms taken just after some of these seizures revealed another mechanism disorder, a ventricular tachycardia, flutter and fibrillation in paroxysms along with the heart block. It was surmised that the barium chloride had produced too much of an increase in irritability of the ventricles and the drug was ordered discontinued but the interne failed to carry out the order, and, after another 100 mgm. dose, a severe seizure of what was apparently ventricular fibrillation proved fatal.

Summary

The importance of syncope and coma as medical emergencies has been reiterated.

The causes as encountered in a series of 500 consecutive cases of unconsciousness admitted to the emergency service of a large hospital in a metropolitan city in the deep South have been set down.

The analysis of the cardiovascular group of causes has been carried out in detail and all the causes have been briefly discussed.

The cardiac mechanism disorders that may be held accountable for the syncope have been elaborated upon. Characteristic cases have been cited.

The diagnostic criteria of each and the emergency methods of combating the disturbances have been commented upon.

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900 Ave. B.

A GRADUATE OF FIFTEEN YEARS AGO LOOKS BACK*

CLAUDE F. DIXON, M.D.

Division of Surgery, The Mayo Clinic

ROCHESTER, MINNESOTA

I realize that no audience ever takes its speaker as seriously as he takes himself. Nevertheless, I think that it is my privilege to feel highly honored in being asked by Dr. Mayo and permitted by his alma mater to deliver the 1937 Mayo lecture. It has been my observation that long speeches, regardless of the subjects dealt with, have a definite sedative action on those who listen; it is my intention to cease talking before my audience reaches the lethargic stage.

The invitation to be present on this occasion was accepted with mixed emotions. First,

I feared I might say something which would be misinterpreted and, second, I feared that I most likely would say nothing at all. I am of the impression that if Dr. Mayo could personally deliver this annual address he would attempt to say those things which might prove of value to you who are now occupying the place in this medical school which he occupied more than fifty years ago. As an assistant and associate of Dr. Mayo, I have had the opportunity and privilege of becoming acquainted with certain of his views. If I were to attempt to make a short summation of why, in my opinion, he has attained such astounding success, I should say it is because he is indefatigable and has constantly attempted to pass on to those young physicians about him, the benefits of his vast experience. When I was his assistant, I was occasionally overwhelmed by the stress he so boldly placed on his mistakes. One of his frequent remarks during his days of active surgical practice was: "I am not a lucky surgeon, therefore, I must do my work carefully in order to obtain a good result." In Dr. Mayo's office hangs the following slogan: "There is no fun like work." Someone once asked him what he did for recreation, and his answer was, "Work." His avocation in my estimation has consisted in observing what others did in order that he might further his own knowledge of medicine. He has often instructed me never to fail to visit a hospital or a medical school when the opportunity arose. Many of the valuable maneuvers he employed in operations were his own invention but many, as he frequently stated, were obtained from the house officers during a

visit to some small and often isolated hospital.

If one could impart to the medical student one's exact ideas after having practiced medicine for some years, doubtless some of them would prove of value, but somehow it is difficult to accept advice even when it is strongly suspected that it may be good. As I review my student days, I think I had the wrong viewpoint regarding almost everything that dealt with my teachings. It is perhaps difficult for *most* medical students to obtain the correct perspective with regard to training. I am of the impression that the average medical student spends much of his time thinking about grades and graduation. Perhaps the present system of grading employed in most universities is partially responsible for this attitude. I wonder if considerable of the anxiety about grades would not be dispensed with if it were possible to have only two grades, satisfactory and unsatisfactory. Since I know nothing about teaching, you might expect that I would make some recommendations on this subject.

During the time of undergraduate study, I think that most medical students attempt to think too far ahead, while others doubtless go to the other extreme and apparently think little or do not think at all. Osler, in addressing the medical students at Yale University, said that every man has worked out a philosophy for himself. I suppose that is true, but I am of the opinion that as students are confronted by various obstacles their philosophy changes at least once each semester. Naturally, what I say that the undergraduate student should do—call it advice if you like—is what I think I would do if I were again a medical student. I can

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fully sympathize with the student who not infrequently wonders just what certain parts of his medical curriculum have to do with people who are sick. If any who are here frequently have this thought, I can only say to you that knowledge of the fundamental subjects will be required and that in many instances such knowledge will be conspicuously absent.

The study of medicine is long and arduous. As Hippocrates said, "Life is short, the art is long." At the time of graduation the task will not have been completed. By that time, however, the new physician will be supposed to have acquired such knowledge and wisdom that he can make some practical application of it. It is well, I think, to remember that receipt of the diploma makes the recipient a doctor largely by title only. I make this statement not to be discouraging, but rather to encourage study. Internship is the young physician's first great opportunity to apply to clinical medicine the results of didactic teaching. I have heard students discuss, at the time of graduation, whether an internship was a complete, or only a partial, waste of time. To those students who have doubt about the value of an internship, the time is probably entirely wasted. The question of compulsory internship needs no comment, except to say that the doctor without postgraduate training wanders around more aimlessly than a ship without a rudder. The period of postgraduate training is the physician's first good chance to discover himself. By hard work, study, and observation, it affords a test of his potential wisdom. The tool of common sense is here imperative. Some students perhaps consider an internship a rest period in which they relax for a time before retiring to their home towns, where they will gladly enlighten older contemporaries on the new theories of disease and its treatment. Such students, however, usually develop into those young doctors who change location frequently, because it is difficult for them to find a community which appreciates their talent.

The intern year should be a year of work. Promptness, seriousness, and thorough study of cases are good investments. This is the period when one can learn to evaluate the patient's story of his illness, and can develop expertness in physical examination. These two factors form parts of the equa-

tion, and ability to correlate them will be the result. Careful observation of the methods of members of the staff, whether they prove to be right or wrong, all give to the young man an invaluable perspective.

Some graduates in medicine become general practitioners; others continue training in special fields. To determine just what branch of this vast subject one will become most interested in requires time. Things apparently of a trivial nature may influence one. Osler matriculated at Trinity College, in Ontario, because he read in one of the college bulletins that dancing and singing were taught to the senior class. It was here that he met Rev. W. A. Johnson, who, he said, was the sole influence that enabled him to become what he did become. Choice of a specialty should be determined entirely by one's interest in the subject.

Many students become disillusioned regarding specialization. I refer to the individual who selects a special field in medicine because it appears easy, a short cut to fame and possible fortune. Regardless of what branch of medicine is most intriguing, a general knowledge of the subject of medicine is necessary. A successful internist is one who has some knowledge of surgery. The surgeon who is successful must understand and know the fundamentals of diagnosis. The doctor who classifies himself as a surgeon because he cuts when and where the internist or physician instructs him to cut, is an operator only, and fortunately his type is fading into the background.

I am trying to emphasize the importance of a thorough training in medicine as a whole before any effort is expended in the direction of specialization. The eye specialist must know something of systemic disease. He must have a fundamental knowledge of neurology. He who attempts correction of vision when the cause of impaired eyesight is a tumor of the brain or nephritis is a mere fitter of glasses. The orthopedist needs more knowledge than a thorough understanding of anatomy of the skeletal system. To a degree he, too, must be an internist, a physician. He must know the effects of certain systemic diseases on the structures with which his special field is concerned. Every so-called specialty of medicine could be considered in this way, and it would be found that those who are outstanding in special fields are those who

have a good knowledge of general medicine.

When should the student or young physician, who intends to specialize, decide what his specialty is to be? The majority of those who think they know this at an early period of their education doubtless will be like Saul seeking his asses. "They suddenly will come on something more important." Therefore, there is no need to occupy the mind with this problem until more has been learned than can be acquired in the classroom. Sometime during the first or second year of internship is perhaps early enough to decide. All of any given class will not become specialists, perhaps only a small percentage will specialize; the remainder will become general practitioners.

During the last decade the general practitioner, the country doctor, and the specialist have all been criticized.

What is the trend of medicine with regard to the specialist and the general practitioner? The country doctor formerly was, for the majority of the community, the authority on many subjects. Along with the minister and the lawyer, he was called on to settle all controversies of the vicinity. The family physician is now consulted only for the professional service he can render, and that professional service is more limited than it was formerly. The family doctor, who twenty-five years ago extracted teeth, fitted glasses, cared for confinement cases, treated fractures, and so forth, is finding himself more limited because of the specialist. I do not misjudge the importance of the family doctor, for I realize that he can and does treat 80 per cent of all sickness. Furthermore, I think no one deserves more praise than the general practitioner who ministers to sick and suffering humanity. He gives freely of himself; his judgment in regard to the diagnosis and treatment of many maladies is founded on experience and in many instances is irreproachable. The medical graduate just out of school cannot compete with many of the widely experienced general practitioners in the average case. Years of experience have enabled the family doctor to practice medicine by ear better than the inexperienced man can practice by note. However, the recent graduate who is fundamentally well informed and makes practical application of his information, with accumulating experience, can place himself in a superior posi-

tion which will qualify him scientifically to diagnose and treat not only the usual garden varieties of diseases but the more unusual cases as well.

The trend of medicine seems to be toward specialization and group practice. It is not difficult to imagine that the patient who has an unusual condition receives better attention if all those who attend him are exceptionally well trained in one or two certain fields. Individualism in medicine can be compared to individualism in industry. Every well organized business today is operated not entirely by one individual but by groups of persons, each of whom is an expert in a particular department. It is true that the ailments of many patients are not difficult to diagnose and no more difficult to treat, but the unusual conditions which afflict roughly 20 per cent of people who seek medical advice can be managed best by a group of specialists. The trend of medicine toward specialization will answer, I think, a common question of the present time: Is the production of doctors today greater than the demand? According to the number being graduated from medical schools at present the supply will not meet the demand if specialization is taken seriously.

As I have said before, specialization is not infrequently criticized. Most of the criticism, however, is aroused by those individuals who have declared themselves to be specialists by desire rather than by extensive training. Can you imagine a physician who has done general practice for a number of years suddenly limiting himself to urology and thereby administering expertly to his clientele? He certainly cannot do so without special training and by that I do not mean a few weeks or months spent in observing someone who does things the way they should be done. The so-called specialists who are trained overnight are largely responsible for the criticisms against specialization. It is reasonable to assume, I think, that intensive training in a certain field of medicine, preceded by the acquirement of a thorough, general fundamental knowledge of the subject, qualifies one to do better work in a specialty than does the information gained through attempts to do everything. It requires time to become a true specialist; therefore, those who choose this type of practice will not be worthy of the designation until a considerable period

has elapsed following their graduation from medical school.

The public is becoming educated regarding professional requirements. Charlatans are being discovered earlier in their activities and are being punished. When those who patronize quacks decide to secure the services of doctors, more of the latter will be required. The various mediums for education of the public will have the desired effect, and "cure-alls" will fade into oblivion, where they have always belonged.

Regardless of how well trained a physician becomes, he will make mistakes of which he will not be proud, but if he is properly prepared to practice scientific medicine his "batting average" will be high and his results commendable.

As I near the close of my address I cannot refrain from emphasizing some ideals which I think are worth considering seriously. The physician should be interested in medicine to such an extent that commercialism does not enter his mind. If he works hard and takes advantage of his opportunities for training, remuneration for his efforts will be sufficient to furnish more than the necessities of life.

Even while a medical student it is well to acquire what some may term "useless knowledge." I refer to the reading of worthwhile literature. This must not be done at the expense of school work, but it can be done at the cost of a few hours of sleep, and it will broaden the view and increase the appreciation of all that is good. It is delightful, if possible, to be well informed on subjects other than medicine.

Time spent in ridiculing a competitor is

wasted. Osler said never to believe what a patient tells about another doctor even though there is reason to suspect that it is true.

No one dedicates his life more assiduously to humanity and its suffering than does the honest, painstaking, sympathetic physician who spends no small share of his life in arduous toil of preparation only to give freely of his knowledge and skill. I recite from Stephen Paget's "Confessio Medici," quoted by Cushing: "Every year, young men enter the medical profession who neither are born doctors, nor have any great love of science, nor are helped by name or influence. Without welcome, without money, without prospects, they fight their way into practice, and in practice they find it hard work, ill-thanked, ill-paid; there are times when they say, 'What call had I to be a doctor? I should have done better for myself and my wife and the children in some other calling.' But they stick to it, and that not only from necessity, but from pride, honor, conviction; and Heaven, sooner or later, lets them know what it thinks of them. The information comes quite as a surprise to them, being the first received from any source, that they were indeed *called* to be doctors; and they hesitate to give the name of vocation to work paid by the job, and shamefully underpaid at that. Calls, they imagine, should master men, beating down on them: surely a diploma, obtained by hard examination and hard cash, and signed and sealed by earthly examiners, cannot be a summons from Heaven. But it may be. For, if a doctor's life may not be a divine vocation, then no life is a vocation, and nothing is divine."

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*"Every man owes some of his time to the up-
 building of the profession to which he belongs."*

—THEODORE ROOSEVELT.

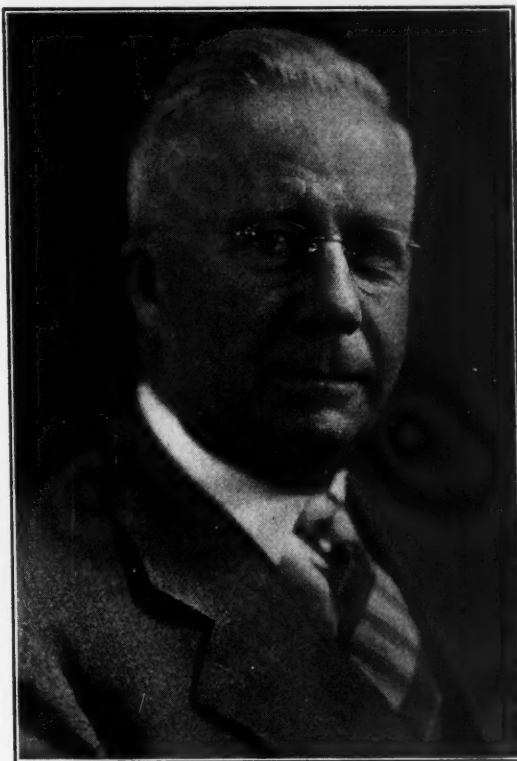
EDITORIAL

THE BASIC SCIENCE LAW

THE idea of a Basic Science Law which demands a uniform preliminary education for all who would look forward to practicing the healing art originated nearly a decade ago during Dr. John B. Jackson's presidency of the Michigan State Medical Society. The times, however, were apparently not ripe for such a law, so that it passed into oblivion until the idea was resuscitated last year. The drafting of the Basic Science Bill was largely the work of the legislative committee of the Michigan State Medical Society. A number of names might be mentioned in connection with the writing and phrasing of the model bill. The present legislative committee, however, under the vigorous chairmanship of Dr. L. G. Christian of Lansing, was very active in seeing it through to its desired fruition. The members of the present legislature,

however, are the final arbiters, and it is due to their insight and wisdom that the measure has actually become law.

When any measure comes before a legislative body, the members are solicitous that it may not affect adversely the interests of any group who may feel they have vested



HENRY E. PERRY, M. D., Newberry
 The President of the Michigan State Medical Society spent five months in the Capitol City during the Legislative session to help with the passage of the Basic Science Law.

rights. It is the desire to be fair on the part of the legislator that makes him try to see the matter from all angles and to amend it according to his best light. Dr. Christian and his committee, together with President Henry E. Perry, who transferred his residence to the Capital City during the session of the Legislature, pointed out during the past session the merits of the bill and endeavored to clear up any misapprehension. This entailed a lot of time, but the governor, senate and the house rose to the occasion in this broad public health measure.

We speak of it advisedly as a health measure in the interests of every inhabitant of the state. No practicing physician will benefit personally. This was not the purpose of the bill. With the advances in the sci-

ence of medicine and the efforts on the part of the profession to keep abreast of the times by availing themselves of the post-graduate opportunities offered, the cults have never been nor can they be a factor so far as competition is concerned. The bill, as we have repeatedly said, raises the standard of all aspirants to the healing arts so that the healer of choice, whether a member of the regular medical profession, or osteopath or chiropractor, will be a better educated man than he would be if not required to pass satisfactorily an examination in the basic sciences. The law is not retroactive and, therefore, cannot in any sense affect those already licensed to practice.

PROGRAM OF SYPHILIS CONTROL IN MICHIGAN

THE committee for the control of syphilis is a subcommittee of that on preventive medicine. This committee has devised a program for the control of syphilis which is suggested to public health boards as a guide to their control policies.

The essential features of the proposed control plan are: The medical profession of the state to coöperate in the national program, with the family physician an important factor; education and training of the physician for this work; coöperation by the local health department with trained personnel with an appropriate committee of the County Medical Society; consultation and special laboratory facilities; laboratory service for diagnosis and free drugs for treatment; compensation of physicians for treatment of the indigent and borderline indigent cases; and a uniform plan for all sections of the state.

To inaugurate such a program, funds are required. The original request for a federal appropriation of twenty-five million dollars has been cut to four million so that the remaining hope is for state and county appropriations. The Michigan legislature has appropriated the sum of twenty-five thousand dollars for the purchase of anti-syphilitic drugs, which, while inadequate, is a move in the right direction.

The work of the medical profession consists in finding sources of infection and contacts and the administration of adequate treatment. For this work, each phy-

sician should especially qualify himself by means of refresher courses or by close study of his medical journals which seek to supply this information from time to time.

The public are becoming acquainted with syphilis and its ravages. The word has come out of hiding and has been accorded a place in the public press. In other words, the public is becoming health-minded.

The members of the medical profession should feel that it is their opportunity to carry on this work. They should not capitulate entirely to health boards, which means a further inroad of state medicine. Dr. Thomas Parran, the surgeon-general, has declared himself interested in the results only. If favorable results can be obtained by the coöperation of the private practitioner, so much the better.

THE JOINT COMMITTEE

THIS term, as is well known to the profession of the state, comprises a group made up of representatives from various institutions which are concerned with health; among them the Michigan State Medical Society, The University of Michigan Medical School, the Wayne University Medical School, The Michigan State Nurses Association, The Michigan State Dental Society, the Michigan Tuberculosis Association and a number of others. The object of this organization is to disseminate medical knowledge or health education among the laity. Its function is to instruct, not to propagandize. The work of the association has been accomplished by means of health columns in the various daily and semi-weekly newspapers throughout the state, supplemented by addresses by physicians before school audiences and parent-teacher associations as well as before other lay groups.

The Public, as a result of the work of this organization, have become health conscious. The various campaigns for the elimination of infectious diseases, such as tuberculosis and syphilis, have also furthered the idea of public health.

At a recent meeting of the Joint Committee, Dr. Burton R. Corbus of Grand Rapids was elected to act as chairman for this year. Dr. Corbus has been very active in the interests of the Michigan State Medical Society for many years. His experience

fits him admirably for the position. We look forward to a year of unprecedented activity in this matter of public health education, which, if it is to be effective, must be directed by the medical profession of the state.

RABIES

THERE have been a number of cases of rabies reported by the daily press in Detroit and we presume also in other places throughout the state. According to the *Journal of the American Medical Association*, the situation is even worse in Chicago than in Detroit. The danger of rabies appears to be very real where a large number of unowned or stray dogs are permitted to roam the city streets.

Commenting on the work of the Rockefeller Foundation, which covers a worldwide field, the *Journal of the American Medical Association* goes on to say.

"The extent to which informed sources recognize the great danger of rabies is further illustrated by the fact that the Rockefeller Foundation began a program of laboratory and field work on rabies in 1936. This disease, according to the foundation report, has become increasingly menacing, particularly in some of the southern states. With this recognition that some regions are more threatened than others, it must also be emphasized that no areas where possible carriers of rabies are present can be considered exempt. The Rockefeller report also states that there has been little research on this disease since Pasteur's time. A quicker and more positive test for rabies in animals and a less cumbersome method of vaccination are badly needed.

"All these facts point to the conclusion that immediate and coordinated action is necessary. Rabies is a disease in which individual efforts are relatively helpless unless aided by the full machinery of social organization. The press, public health officials, the police and physicians—in both their individual and their official capacities—should take steps to combat this threatening situation at once if a considerable number of unnecessary deaths is to be avoided. In the face of the now existing information as to the frequency and rapid spread of rabies among animals, it seems criminal to postpone action until the disease is identified in human beings. Because rabies is primarily a disease of dogs, it seems likely that this campaign will have the whole-hearted support of all the animal numpane societies."

No one can take exception to the advice suggested in the last paragraph. From the letters in the newspapers, one is led to conclude that the population is divided into two classes, dog lovers and dog haters. A great deal of emotion is displayed by the public letter writers of both classes. Being a dog lover, we would suggest that the dog

owner comply to the letter with advices from health departments. To protect the dog, he should be kept off the street where no other animal can harm him.

We wonder if rats are not a source of spread of the disease. Most cities are infested with rats and there is no concerted effort towards their extermination. We would advise an anti-rat campaign as a helpful measure toward prevention.

Children and grown-ups alike should refrain from petting any dogs not well known. Dogs resent the familiarity of strangers and are apt to snap at them, in which case the humans are entirely at fault.

Without indulging in any homily on the dog, one should protect his pets by at least keeping them off the streets where they will neither menace others nor be menaced by others not so protected.

BASIC SCIENCE

The Basic Science Bill has become a law in Kansas.

The bill, as originally presented, contained provisions that would have required all representatives of the healing arts affected by it to prove themselves qualified in five basic subjects which are taught in all of their schools.

The public was then to have been served by representatives of not one or two, but three branches of the healing arts, all better qualified to render health service.

As amended, however, the law exempts osteopaths, chiropractors, and all other practitioners who are now regulated by their state board examiners.

The legislative battle failed to develop a means by which the public can measure training qualifications of some schools; yet the battle was not in vain. Several other branches of the healing arts do not have state board examiners, therefore their representatives who meet the requirements of this law may gracefully present themselves to the public with their qualifications.—*The Journal of the Kansas Medical Society*, May, 1937.

THIS is what has happened to the basic science bill in the Kansas legislature. The apparent misunderstanding on the part of the legislators who emasculated the bill is unfortunate. There is an old Latin adage, *Salus populi suprema lex*. The purpose of such proposed legislation is the safety of the people. When interpreted as the interest of any class, group or cult, the result is what we have described here, by the editor of the *Journal of the Kansas Medical Society*.

As we have written repeatedly, there is only one basis for all healers (and this in-

cludes the medical profession) and that is included in the basic subjects named in the Kansas Bill as well as that recently made into law by the Michigan legislature. There is no more of a place for cultism in the healing professions than there is in engineering or physics or chemistry in their broad scientific application. It is hoped that in the interests of the people of Kansas as well as any other state, the legislators will realize this fact.

VACATIONS

THE season has arrived when the uppermost thought in the mind of many is how and where to spend the vacation. Particularly is this true with salaried persons who have from two weeks to two months at their disposal for gaining a second wind before resuming their occupations. Physicians, in the aggregate, take time off from their work less frequently than any other professional group. For a few, it is an afternoon a week at golf. Fewer still are disciples of Izaak Walton. Everyone, if possible, should have a change of scene at least once a year; oftener, if possible.

Many, however, seldom or never take time off from their work. We have in mind, more particularly, the professional man, the doctor, dentist or lawyer, with whom so-called overhead expense never goes on vacation. They cannot take time off, or at least feel that it cannot be done. There is an old saying, "If you can't get what you want, want what you have." Suppose the majority of us, then, want what we have. Medicine has many compensating qualities besides the more or less meager, sometimes uncertain, monetary returns that too often reward one's services. It is interesting and varied as an art and science. It presents problems for solution that are themselves stimulating and thus eliminate monotony. The same is true of the work of editing a medical journal. The solution of problems keeps the mind from becoming jaded. It is the monotonous routine of an occupation that makes periodic change necessary. Where persons are satisfactorily adjusted, work is less enervating. Again, to quote an old stoic proverb, "Men are tormented by the opinion they have of things, rather than by the things

themselves." In other words, it is not work that hurts us so much as the way we react to it. A harmonious relation between man and his task will go a long way in the matter of a continual renewal of strength and outlook, so that weeks or months spent in *absentia* are not really necessary.

Then there is another aspect. One should never feel hurried in his work. Hurry causes inferior work and inferior work never satisfies. Geared to the tempo of a machine, the strongest nerves must sooner or later give out. With interesting work, satisfactory adjustment and absence of hurry and worry, those who cannot take a periodic vacation may feel themselves not so badly off after all.

Diagnostic Aspects of Roentgenologically Negative Gastric Disorders

George B. Eusterman, Rochester, Minn. (*Journal A. M. A.*, Oct. 31, 1936), states that in the process of elimination, a negative report is of the greatest diagnostic value and would for practical purposes exclude ulcer of the stomach and duodenum, gastric carcinoma, pyloric and duodenal obstruction and duodenal dilatation from whatever cause. A negative report also would exclude roentgenologically positive forms of gastritis and the majority of the rare forms of gastric and duodenal lesions such as benign granulomatous and lymphomatous tumors, diverticula, the majority of diaphragmatic hernias and the occasional deformities caused by extensive adhesions. In their aggregate such intrinsic lesions are responsible for about a fifth of the cases of chronic gastric disturbances. In private general practice the percentage may not exceed 10. The conditions just enumerated may be regarded as roentgenologically positive disorders. In considering roentgenologically negative gastric disorders the classification proposed by Berger is simple yet comprehensive. It is substantially as follows: (1) unrecognized roentgenologically positive gastric disorders, (2) roentgenologically negative disorders of the stomach itself, (3) actual or apparent gastric disturbances resulting from disease of abdominal viscera other than the stomach, and (4) actual or apparent gastric disturbances resulting from disease remote from the abdominal organs. Gastric disturbances reflexly engendered by disease of abdominal viscera other than the stomach itself or its continuations in the author's opinion exceed in importance the gastric neuroses, because of their nature and extent and the comparative frequency of their occurrence. They constitute from a third to two fifths of all cases. The neuroses constitute about a fourth of the total. In from 15 to 20 per cent of cases, gastric disturbances are attributable to disease of organs remote from the stomach, but only on infrequent occasions are such gastric disturbances the sole expression of an extragastric disorder. Complete and systematic anamnesis and physical examination, and a few simple well chosen laboratory studies, will usually disclose the true nature of the underlying cause no matter how irrelevant the subjective complaint may appear to be.

THE OCCUPATIONAL DISEASE LAW

STATE OF MICHIGAN

59TH LEGISLATURE

REGULAR SESSION OF 1937

Senate Bill No. 106

Introduced by Senators Hittle and Burke

Senate Enrolled Act No. 28

(Ordered to be known as the "Hittle-Burke-Rowell-Smith-Martin Act.")

AN ACT to amend the title of act number ten of the public acts of the first extra session of nineteen hundred twelve, entitled "An act to promote the welfare of the people of this state, relating to the liability of employers for injuries or death sustained by their employes, providing compensation for the accidental injury to or death of employes and methods for the payment of the same, establishing an industrial accident board, defining its powers, providing for a review of its awards, making an appropriation to carry out the provisions of this act, and restricting the right to compensation or damages in such cases to such as are provided by this act," as amended, being sections eight thousand four hundred seven to eight thousand four hundred eighty-five, inclusive, of the compiled laws of nineteen hundred twenty-nine, and to add thereto a new part to stand as part seven, and to consist of sections one to thirteen inclusive.

The People of the State of Michigan enact:

Section 1. The title of act number ten of the public acts of the first extra session of nineteen hundred twelve, entitled "An act to promote the welfare of the people of this state, relating to the liability of employers for injuries or death sustained by their employes, providing compensation for the accidental injury to or death of employes and methods for the payment of the same, establishing an industrial accident board, defining its powers, providing for a review of its awards, making an appropriation to carry out the provisions of this act, and restricting the right to compensation or damages in such cases to such as are provided by this act," as amended, being sections eight thousand four hundred seven to eight thousand four hundred eighty-five, inclusive, of the compiled laws of nineteen hundred twenty-nine, is hereby amended, and a new part is hereby added to said act to stand as part seven, and to consist of sections one to thirteen inclusive, said amended title and added part and sections to read as follows:

TITLE

An act to promote the welfare of the people of this state, relating to the liability of employers for injuries or death sustained by their employes, providing compensation for the disability or death resulting from occupational injuries or disease or accidental injury to or death of employes and methods for the payment, and apportionment of the same, establishing an industrial accident board, defining its powers, providing for a review of its awards, making an appropriation to carry out the provisions of this act, and restricting the right to compensation or damages in such cases to such as are provided by this act.

PART VII

Sec. 1. Definition. Whenever used in this act:

(a) The word "disability" means the state of being disabled from earning full wages at the work at which the employe was last employed;

(b) The word "disablement" means the event of becoming so disabled as defined in subparagraph (a);

(c) The term "occupational disease" means a disease which is due to causes and conditions which are characteristic of and peculiar to a particular trade, occupation, process or employment.

Sec. 2. The disablement of an employe resulting from an occupational disease or condition described in the following schedule shall be treated as the happening of a personal injury by accident within the meaning of this act and the procedure and practice provided in this act shall apply to all proceedings under this part, except where specifically otherwise provided herein:

Disabilities arising from

1. Anthrax
2. Lead poisoning or its sequelæ
3. Zinc poisoning or its sequelæ
4. Mercury poisoning or its sequelæ

Caused by

Handling of wool, hair, bristles, hides or skins

Any process involving the use of or direct contact with lead or its preparations or compounds.

Any process involving the use of or direct contact with zinc or its preparations or compounds or alloys.

Any process involving the use of or direct contact with mercury or its preparations or compounds.

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5. Phosphorus poisoning or its sequelæ Any process involving the use of or direct contact with phosphorus or its preparations or compounds.
6. Arsenic poisoning or its sequelæ Any process involving the use of or direct contact with arsenic or its preparations or compounds.
7. Poisoning by wood alcohol Any process involving the use of wood alcohol or any preparation containing wood alcohol.
8. Poisoning by benzol or nitro-, hydro-, hydroxy-, and amido-derivatives of benzene (dinitro-benzol, anilin, and others), or its sequelæ Any process involving the use of or direct contact with benzol or nitro-, hydro-, hydroxy-, or amido-derivatives of benzene or its preparations or compounds.
9. Poisoning by carbon bisulphide or its sequelæ, or any sulphide Any process involving the use of or direct contact with carbon bisulphide or its preparations or compounds, or any sulphide.
10. Poisoning by nitrous fumes or its sequelæ Any process in which nitrous fumes are evolved.
11. Poisoning by nickel carbonyl or its sequelæ Any process in which nickel carbonyl is evolved.
12. Dope poisoning (poisoning by tetrachlor-methane or any substance used as or in conjunction with a solvent for acetate of cellulose or nitro cellulose), or its sequelæ Any process involving the use of or direct contact with any substance used as or in conjunction with a solvent for acetate of cellulose or nitro cellulose.
13. Poisoning by formaldehyde and its preparations Any process involving the use of or direct contact with formaldehyde and its preparations.
14. Chrome ulceration or its sequelæ or chrome poisoning Any process involving the use of or direct contact with chromic acid or bichromate of ammonium, potassium, or sodium or their preparations.
15. Epitheliomatous cancer or ulceration of the skin or of the corneal surface of the eye, due to tar, pitch, bitumen, mineral oil or paraffin, or any compound, product or residue of any of these substances. Handling or use of tar, pitch, bitumen, mineral oil, or paraffin or any compound, product or residue of any of these substances.
16. Glanders Care or handling of any equine animal or the carcass of any such animal.
17. Compressed air illness or its sequelæ Any process carried on in compressed air.
18. Miners' diseases, including only cellulitis, bursitis, ankylostomiasis, tenosynovitis and nystagmus Any process involving mining.
19. Cataract in glassworkers Processes in the manufacture of glass involving exposure to the glare of molten glass.
20. Radium poisoning or disability due to radio-active properties of substances or to Roentgen rays (X-rays) Any process involving the use of or direct contact with radium or radio-active substance or the use of or direct exposure to Roentgen rays (X-rays).
21. Methyl chloride poisoning Any process involving the use of or direct contact with methyl chloride or its preparations or compounds.
22. Carbon monoxide poisoning Any process involving direct exposure to carbon monoxide in buildings, sheds or enclosed places.
23. Poisoning by sulphuric, hydrochloric or hydrofluoric acid Any process involving the use of or direct contact with sulphuric, hydrochloric or hydrofluoric acids or their fumes.
24. Respiratory, gastro-intestinal or physiological nerve and eye disorders due to contact with petroleum products and their fumes Any process involving the use of or direct contact with petroleum or petroleum products and their fumes.
25. Disability arising from blisters or abrasions Any process involving continuous friction, rubbing or vibration causing blisters or abrasions.

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| 26. Disability arising from bursitis or synovitis | Any process involving continuous rubbing, pressure or vibrations of the parts affected. |
| 27. Dermatitis (venenata) | Any process involving the use of or direct contact with acids, alkalies, acids or oil, or with brick, cement, lime, concrete, or mortar capable of causing dermatitis (venenata). |
| 28. Hernia | Clearly recent in origin and resulting from a strain, arising out of and in the course of employment and promptly reported to the employer. |
| 29. Stone worker's or grinder's phthisis | Quarrying, cutting, crushing, grinding or polishing of stone, or grinding or polishing of metal. |
| 30. Silicosis | Mining. |
| 31. Pneumoconiosis | Quarrying, cutting, crushing, grinding or polishing of metal. |

Sec. 3. If an employe is disabled or dies and his disability or death is caused by one of the diseases mentioned in the schedule contained in section two of this part and the disease is due to the nature of the employment in which such employe was engaged and was contracted therein, he or his dependents shall be entitled to compensation for his death or for his disablement, and he shall be entitled to be furnished with medical and hospital services, all as provided in part two of this act, except as hereinafter stated in this part: *Provided, however,* That if it shall be determined that such employe is able to earn wages at another occupation which shall be neither unhealthful nor injurious and such wages do not equal his full wages prior to the date of his disablement, the compensation payable shall be a percentage of full compensation proportionate to the reduction in his earning capacity.

Sec. 4. Compensation shall not be payable for partial disability due to silicosis or other dust disease. In the event of temporary or permanent total disability or death from silicosis or other dust disease, notwithstanding any other provisions of this act, compensation shall be payable under this part to employes in the employments enumerated in section three of this part, or to their dependents in the following manner and amounts: If disablement or death occurs during the first calendar month in which this act becomes effective not exceeding the sum of five hundred dollars; if disablement or death occurs during the second calendar month after which this act becomes effective not exceeding the sum of five hundred and fifty dollars; thereafter the total compensation and benefits payable for disability and death shall increase at the rate of fifty dollars each calendar month. The aggregate amount payable shall be determined by the total amount payable in the month in which disablement or death occurs. In no event shall such compensation exceed an aggregate total of three thousand dollars.

Sec. 5. Neither the employe nor his dependents shall be entitled to compensation for disability or death resulting from such occupational disease, unless such occupational disease is due to the nature of his employment and was contracted therein, or in a continuous employment similar to the one in which he was engaged at the time of his disablement, within twelve months previous to the date of disablement, whether under one or more employers. The time limit for contraction of the occupational disease prescribed by this section shall not bar compensation in the case of an employe who contracted such occupational disease in the same employment with the same employer by whom he was employed at the time of his disablement and who had continued in the same employment with the same employer from the time of contracting such occupational disease up to the time of his disablement thereby.

Sec. 6. In case the employe is alleged to be suffering from an occupational disease and there shall be a dispute with respect thereto, the said board, or any member thereof, shall appoint a commission of three qualified impartial physicians to examine the injured employe and to report. The report, when signed by at least two of the members of said commission, shall be final and conclusive as to the condition of said employe with respect to the alleged disease or diseases. Members of the commission shall receive such compensation for their services as shall be fixed by the board, to be paid from the appropriation to the department of labor and industry.

Sec. 7. For the purposes of this part the date of disablement shall be such date as the board may determine on the hearing of the claim.

Sec. 8. No compensation shall be payable for an occupational disease if the employe, at the time of entering into the employment of the employer by whom the compensation would otherwise be payable, or thereafter, wilfully and falsely represents in writing that he has not previously suffered from the disease which is the cause of the disability or death. Where an occupational disease is aggravated by any other disease or infirmity, not itself compensable, or where disability or death from any other cause, not itself compensable, is aggravated, prolonged, accelerated, or in any wise contributed to by an occupational disease, the compensation payable shall be such proportion only of the compensation that would be payable if the occupational disease were the sole cause of the disability or death as such occupational

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disease, as a causative factor, bearing to all the causes of such disability or death, such reduction in compensation to be effected by reducing the number of weekly payments or the amounts of such payments, as under the circumstances of the particular case may be for the best interests of the claimant or claimants.

Sec. 9. The total compensation due shall be recoverable from the employer who last employed the employee in the employment to the nature of which the disease was due and in which it was contracted. If, however, such disease was contracted while such employee was in the employment of a prior employer, the employer who is made liable for the total compensation as provided by this section may appeal to said board for an apportionment of such compensation among the several employers who since the contraction of such disease shall have employed such employee in the employment to the nature of which the disease was due. Such apportionment shall be proportioned to the time such employee was employed in the service of such employers, and shall be determined only after a hearing, notice of the time and place of which shall have been given to every employer alleged to be liable for any portion of such compensation. If the board finds that any portion of such compensation is payable by an employer prior to the employer who is made liable for the total compensation as provided by this section, he shall make an award accordingly in favor of the last employer, and such award may be enforced in the same manner as an award for compensation.

Sec. 10. The employer to whom notice of death or disability is to be given, or against whom claim is to be made by the employee, shall be the employer who last employed the employee during the said twenty-four months in the employment to the nature of which the disease was due and such notice and claim shall be deemed seasonable as against prior employers. The requirements as to notice as to occupational disease and death resulting therefrom and the requirements as to the bringing of proceedings for compensation for disability or death resulting from such occupational disease shall be the same as required in section fifteen of part two of this act, except that the notice shall be given to the employer within one hundred twenty days after the disablement.

Sec. 11. The employee, or his dependents, if so requested, shall furnish the last employer or the board with such information as to the names and addresses of all his other employers during the said twenty-four months, as he or they may possess; and if such information is not furnished, or is not sufficient to enable such last employer to take proceedings against a prior employer under section ten of this part, unless it be established that the occupational disease actually was contracted while the employee was in his employment such last employer shall not be liable to pay compensation, or, if such information is not furnished or is not sufficient to enable such last employer to take proceedings against other employers under section ten of this part, such last employer shall be liable only for such part of the total compensation as under the particular circumstances the director may deem just; but a false statement in the information furnished as aforesaid shall not impair the employee's right unless the last employer is prejudiced thereby.

Sec. 12. Nothing in this act shall affect the rights of an employee, or his dependents, to recover compensation in respect to a disease to which this act does not apply, if the disease, apart from this act, is one for which compensation is payable under the other provisions of this act.

Sec. 13. This act shall not apply to cases of occupational disease in which the last injurious exposure to the hazards of such disease occurred prior to the effective date of this act.

This act shall not apply to any employer or employee in agricultural industry or in the nursery or orchard business, or to any labor incidental to farming, including repairs on buildings and other property in connection therewith.

.....
Secretary of the Senate.

.....
Clerk of the House of Representatives.

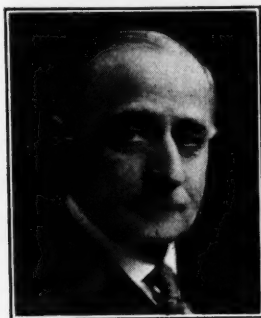
Approved.....

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Governor.

THE LEGISLATIVE COMMITTEE



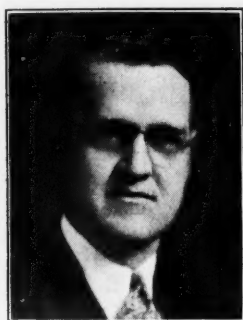
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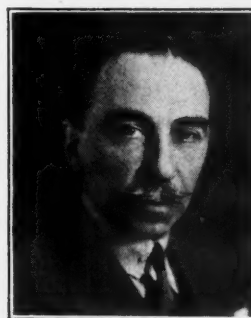
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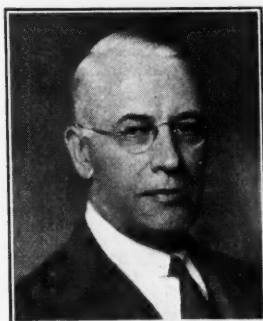
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Bay City

"At great personal sacrifice, these physicians gave generously of their time and talents during five long months to engineer through the 1937 Michigan Legislature the most important preventive medical measure presented to the Legislature during the past thirty-eight years—the Basic Science Law.

"Each and every physician—and all the people—owe a debt of everlasting gratitude to the chairman and members of the Legislative Committee of the Michigan State Medical Society."



THE INVESTMENT PROGRAM

By HENRY C. BLACK and
ALLISON E. SKAGGS

WHILE previous discussions in these columns have dealt largely with methods for increasing income, it is no less important to consider carefully the proper handling of these funds after they have been obtained. Investments should be approached with the thought in mind that money is a tool with which may be fashioned whatever of ownership or security the individual doctor most desires, and if we outline some of the more common forms possibly a few of the pitfalls may be exposed and the way shown for getting the most personal satisfaction from them.

Before investing in ordinary stocks and bonds there are several requirements that should be met:

1. An adequate life insurance program.
2. All debts paid.
3. A substantial bank account.
4. A reserve in savings or Government bonds.

Life Insurance

Regardless of financial trends, it is generally conceded that well-programmed life insurance is always a safe and conservative means of establishing an estate early in life. Every doctor rightly wants to assure his family of an adequate living in the event of his death, and the reserve thus established can provide an income for him in his less productive years if necessary. Until at least a minimum requirement of life insurance is purchased, it is very doubtful if any other form of investment need be considered at all. Life insurance should be bought, not in terms of dollars and cents, but rather in terms of what requirements it needs to meet.

Pay Your Debts First

Absurd, as it may sound, large numbers of men are playing the stock market or making monthly payments to investment firms when they owe large sums on their own business equipment or on their homes.

Such jeopardizing of absolute personal necessities for the sake of a possible profit sometime in the indefinite future cannot be too strongly condemned, and it is usually a result of illogical planning and haphazard buying.

Substantial Bank Account

The financial difficulties encountered by any business are often caused by a lack of ready cash to carry on through an emergency and it is with this definitely in mind that the first investment, after providing some guarantee of income for the family, should be an investment in peace of mind—the building up of a substantial bank account. That would mean a bank account large enough to allow payment in full of all bills on the tenth of the month with a sufficient balance left over for the following month's requirements even if there were no further income.

Cash Reserves

Just as cash in the bank is important for handling current living and operating expenses without financial worries, a reserve fund in Government bonds or in a savings account is valuable in the event of an emergency, and the comparatively low interest rate is more than offset by the knowledge that the money is readily available if and when needed. Many times an excellent idea cannot be carried out or a family emergency becomes difficult because cash cannot be obtained when needed.

Use a Specialist

Most of these suggestions are written with an average medical income in mind, for the man who has large funds to invest already knows and uses similar ideas. When requirements previously mentioned are satisfied and surplus funds of \$1,000.00 or more are available for investment, intelligent doctors should use the same good advice they give their patients. They should take their problem to an experienced investment counsel who is deserving of their confidence, and follow his advice. Many such men have studied the market trends for

(Continued on Page 507)

President's Page

PROGRESS AND PUBLIC SERVICE

WITH the adjournment of the Michigan Legislature on June 25, the Legislative Committee of the Michigan State Medical Society had full reason to breathe a sigh of relief and satisfaction. Relief, because an end had been reached to six months of hard, nerve-racking work; satisfaction, because its program to protect health laws and promote medical legislation for the benefit of the people had been highly successful.

Of first interest to the medical profession of Michigan was the enactment into law of the Basic Science Bill, and the securing of an appropriation for the new Basic Science Board; of high importance to all physicians in the state was the passage of sound Welfare and Relief legislation; then the Occupational Disease Law, the Ante-Nuptial Examination Act, and other beneficial measures claimed the attention of your Legislative Committee; in addition, further and constant effort was required to keep destructive proposals from becoming statutes.

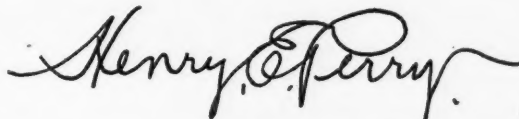
For effective work and telling leadership, sincere and generous thanks are due to Dr. L. G. Christian of Lansing, Chairman of the State Society's Legislative Committee, and to the members of his Committee, Dr. L. H. Bartemeier of Detroit, Dr. J. B. Bradley of Eaton Rapids, Dr. Henry Cook of Flint, Dr. J. W. Hawkins of Detroit, Dr. Wm. A. Hyland of Grand Rapids, Dr. Philip A. Riley of Jackson, Dr. W. E. E. Tyson of Detroit and Dr. Paul R. Urmston of Bay City.

Praise and gratitude are forthcoming to family physicians of legislators, key-men in every county of the state, and chairmen and members of county society legislative and policy committees, who labored valiantly in behalf of House Bill No. 261.

With a deep sense of obligation, tangible help from Dean R. T. Lakey of Detroit is acknowledged, and from numerous presidents and deans of our teaching institutions who boldly expressed themselves as favoring a Basic Science Law.

Through close coöperation and unity, real progress has been made. Let us persevere in our course and continue our gains, standing as one in efforts to protect the people's health and improve medical practice in this state.

I am deeply grateful for the unanimous support given the State Society in its major effort during my tenure of office. I entreat you to keep up your enthusiasm, your unity, and your coöperation, so that my successors, year after year, may report a continuation of progress and greater public service.



President of the Michigan
State Medical Society

DEPARTMENT OF SOCIETY ACTIVITY

L. FERNALD FOSTER, M.D., Secretary

Council Chairman's

- - - Communication

THE VALUE OF "STATE NIGHTS" IN ORGANIZED MEDICINE

TOO much cannot be said for organized medicine. Its protective value to you is most important. When economics are safely cared for then you have the time and money to attend postgraduate courses and keep up your scientific work. Don't you think this a good combination?

The officers of the Michigan State Medical Society are willing to sacrifice their time to meet you face to face and explain to you just what is organized medicine and what is keeping your State Society very busy. We invite you to invite us to visit your county medical society.

The great game of Baseball of the major and minor leagues is highly organized. The players make errors occasionally—but only repeated errors lower their value in the organization. Errors in organized medicine have occurred. The intent was in the right direction but the player should have had an assist to properly conduct the play.

This is why organized medicine has established *regular channels* through which every matter affecting the profession must pass for efficiency and results.

The officers and committees value your assistance. However, before taking action on any matter of general medical interest, look in *THE JOURNAL* for the right committee through which your aid and advice shall flow to insure a unified front with which best results are achieved. In emergency, throw directly home to 2020 Olds Tower, Lansing.

Remember, you are the Michigan State Medical Society now and always.

P. R. URMSTON, M.D.,
Chairman of The Council.

NEW STATE WELFARE LAW

THE Michigan State Legislature, in passing Senate Bill No. 111, created a new State Welfare Department.

Of particular interest to the allied medical professions are Sections 9 and 19:

Section 9. The commission is hereby authorized and empowered to create or abolish bureaus or divisions within the department for the economic and efficient administration of the work of the department, and to allocate and re-allocate their several functions and duties. *The commission may create within the department a bureau or division of medical care; and if such bureau or division of medical care is created, the director, having first obtained the approval of the commission, shall appoint a properly qualified licensed doctor of medicine as the head thereof, which doctor shall at all times be subject to the control of the commission and director.*

Section 19 reads as follows:

The commission shall provide for the distribution of such moneys as shall be appropriated by the legislature for general public relief hitherto known as unemployment relief and poor relief, *including medical care other than hospitalization*, to the several county departments of public welfare, taking into consideration the need for relief and the financial resources of the respective counties on the basis of showings made to the commission, which distribution to each county, city or district department of public welfare shall be in an amount not less than that expended by such department for general public relief, exclusive of state and federal funds, during the previous month. Such moneys may be used to defray administrative expenses. *Medical care as used in this section shall be deemed to include home and office attendance by physicians, dental service, bed-side nursing service in the home, pharmaceutical service, and the burial of the bodies of deceased indigent persons. Insofar as practicable the physician-patient relationship shall be maintained; and normal relationships between the recipients of dental, nursing, pharmaceutical, and burial service and the persons furnishing these services shall be maintained:* provided, That nothing in this section shall be construed as affecting any city physician's office established under any city charter.

The Michigan allied health group, composed of the state associations of physicians, dentists, nurses, pharmacists, and funeral directors, sponsored the above amendment (as indicated in *italics*). In securing these important provisions in such a comprehensive welfare law, the allied health group obtained great assistance from Senator Earnest C. Brooks of Holland, Chairman of the Senate Welfare and Relief Committee, and from Representative Chester B. Fitzgerald

SOCIETY ACTIVITY

of Detroit, Chairman of the Social Aid and Welfare Committee in the House of Representatives. To these chairmen, and to Representative Arthur Royce of Mecosta who defended the medical set-up on the floor of the House, the thanks of the allied medical profession are due and gratefully extended.

The benefits which people on welfare will receive from this far-sighted relief program will redound to the everlasting credit of all legislators who voted favorably for the State Welfare Act of 1937.

MINUTES OF MEETING OF THE EXECUTIVE COMMITTEE OF THE COUNCIL

June 16, 1937

1. *Roll Call.*—The meeting was called to order in the Statler Hotel, Detroit, at 2:15 P.M. by the Chairman, P. R. Urmston. Those present included Dr. P. R. Urmston, Bay City; Dr. A. S. Brunk, Detroit; Dr. F. E. Reeder, Flint; Dr. T. F. Heavenrich, Port Huron; Dr. H. R. Carstens, Detroit; and Dr. I. W. Greene, Owosso. Also present were Dr. Henry Cook, Flint; Dr. L. G. Christian, Legislative Committee Chairman, Lansing; Dr. J. H. Dempster, Detroit; Dr. Angus McLean, Detroit; Dr. Wm. R. Torgerson, Grand Rapids; Dr. M. P. Miller, Trenton; Dr. Dean W. Hart, St. Johns. Also Mr. H. A. Barbour and Mr. C. C. Purdy, attorneys; and Mr. Ralph Gault, Flint, President of Hurley Hospital Board; Dr. T. K. Gruber, Eloise; Dr. J. M. Robb, Detroit; and Executive Secretary Wm. J. Burns.

2. *Minutes.*—The minutes of the meeting of May 13 were read, corrected in Items 6 and 7, and approved as corrected.

3. *Medico-Legal Committee.*—Chairman Angus McLean, Mr. Barbour and Mr. Purdy discussed various problems in connection with medico-legal defense. After full discussion the members of the Medico-Legal Committee and Attorneys Barbour and Purdy were thanked for their attendance and advice.

4. *Admission Policy at University of Michigan Hospital.*—Dr. M. P. Miller of Trenton presented a specific case, which was thoroughly discussed by all present. Dr. Miller will see the Chairman of the Wayne County Filter Committee. The Executive Committee will invite the attention of the Wayne County Medical Society to this case.

5. *Legislative Committee Activity.*—Chairman L. G. Christian reported on the work of the MSMS Legislative Committee, and reviewed House Bill 235, House Bill 202, House Bill 400, Senate Bill 274. Dr. Christian stressed the need for future activity and meetings with other groups interested in health legislation, and the creation of a Michigan Health League or Council. The report of the Legislative Committee was accepted with thanks and ordered placed on file.

6. *Financial Report.*—The financial report for the month of May, and bills payable for the month were presented. Motion of Drs. Brunk-Carstens that the bills be paid and the reports be accepted and placed on file. Carried unanimously.

7. *Annual Meeting.*—The Executive Secretary reported on the progress of the Annual Meeting, outlining the program to date for the seven General Assemblies, and also on the booth sales in the Technical Exhibit.

8. *The Journal.*—A necessary increase in the cost of publishing THE JOURNAL was presented by the Publications Committee, which recommended that same be allowed, beginning with the June, 1937, issue. Motion of Drs. Carstens-Greene that the Committee Report be accepted. Carried unanimously.

9. *Student Health Service.*—Dr. T. K. Gruber spoke of this matter, and reported on the resolution presented to the American Medical Association House of Delegates. The A.M.A. will make a protest to the North Central Association of Secondary Schools and Colleges regarding their present policy.

10. *Post-Graduate Program.*—The following invited guests were present to discuss increased post-graduate activity: Drs. A. P. Biddle, C. C. Slemmons, H. H. Cummings, R. B. Allen, L. J. Hirschman, and H. H. Riecker.

Dr. Cummings presented the report of the Chairman of the Advisory Committee on Post-graduate Education, Dr. J. D. Bruce, on (a) the activities of the Joint Committee on Health Education; (b) the Post-graduate Conference in Atlantic City of June 9; and (c) financial support for the Michigan Post-graduate program. Dr. Bruce recommended the creation of an endowment fund for post-graduate education of \$500,000, to be secured during the next five years, and stated that he personally would be responsible for the collection of \$125,000. Dr. Riecker explained the differences between the activities of the Joint Committee on Health Education, and those of the Advisory Committee on Post-graduate Education, at the request of several present. General discussion ensued. The Executive Committee is very interested in the work of the Joint Committee, and asked to have next year's program presented to it in detail.

Dr. Cummings reviewed the progress of the Post-graduate program, and stated that work this Fall would be earlier and would include talks on syphilis. He stated Dr. Bruce suggested that the Michigan State Medical Society apportion \$2,000 for post-graduate work next year. In the discussion, Dean Allen of Wayne University Medical School congratulated Michigan on its post-graduate Medical activity; Commissioner of Health Slemmons spoke of the continuation of post-graduate refresher courses, arranged by the State Health Department and paid with Social Security Funds. He mentioned it was difficult to arrange courses in some parts of the State. Although he had no idea of the amount of funds available for next year, he thought it would be no less than last year (\$2,900) and might be more. Dr. Biddle urged the Michigan State Medical Society to continue its same interest in post-graduate work which may be the solution for some of the problems facing the profession at this time. Dr. Cummings reported that the attendance last year was 1,454, and the work was growing in interest.

The members of the Advisory Committee on P. G. Education, and the interested guests, were thanked for their attendance and helpful advice.

The Executive Committee discussed the various recommendations, and moved that it is the sense of the Executive Committee that it is favorable to the proposed endowment fund for post-graduate work, that it requests the Advisory Committee on Post-graduate Education to make a further study of this proposal, and that at a later date it report to the Council for further consideration by the House of Delegates of the Michigan State Medical Society; the motion of Drs. Carstens-Reeder was carried unanimously.

The Secretary was instructed to congratulate Dr. B. R. Corbus on his appointment as Chairman of the Joint Committee on Health Education.

11. *Report of the Committee on Economics.*—Dr. Ralph H. Pino, Chairman, reported on his com-

mittee's study of House Bill 202, House Bill 400, Senate Bill 116, and certain activities of the Legislature in connection therewith. This was generally discussed by all present, including members of the Economics Committee and Drs. G. S. McClellan and Wm. P. Woodworth, invited guests present. The Chair stated that the Michigan State Medical Society officers always welcome suggestions, and that best results are obtained when all business affecting the entire profession is carried on through regular channels, as per the ruling of the Michigan State Medical Society House of Delegates on numerous occasions.

12. *Medical Consulting Services in Penal Institutions.*—A letter from the Parole Commission was read, outlining in effect its suggestions made to the Executive Committee on May 13. This was generally discussed. Motion of Drs. Carstens-Brunk that the Executive Committee accept the suggestions of the Parole Commission, and that a committee be appointed to work out further details. Carried unanimously.

The chair appointed to the committee: Drs. P. A. Riley of Jackson, Chairman; R. B. Allen, Detroit; L. Fernald Foster, Bay City; I. W. Greene, Owosso.

13. *Thanks to Legislative Committee.*—Dr. Greene stated that the Basic Science Law had been passed due to the tremendous work of the Michigan State Medical Society Legislative Committee, the county societies' legislative and policy committees, "key-men" throughout the state, and Dean R. T. Lakey, and that thanks are due to all, especially to the Legislative Committee and its chairman, Dr. L. G. Christian. Motion of Drs. Carstens-Brunk that the Executive Committee write a letter to Dr. L. G. Christian and the Legislative Committee, expressing the sincere appreciation of the Executive Committee on behalf of The Council for the earnest energy, indefatigable work and great personal sacrifice incurred in enacting into law a public health measure, the Basic Science Law. Carried unanimously.

14. *Grand Rapids Local Committee.*—Changes in the personnel of the Grand Rapids Committee for the State Meeting were approved as follows: The Committee: Dr. M. S. Ballard, Chairman; Dr. Leon DeVel; Dr. Wm. R. Torgerson; Dr. A. V. Wenger; and Dr. Paul Bloxsom.

15. *Membership Certificate.*—The request of a member for two membership certificates, an original and a copy, one for each of his offices, was discussed. The Executive Committee felt that only one certificate should be issued to each member.

16. *Miscellaneous.*—Dr. Henry Cook spoke of the State Society program of activities for the year 1937-38, and recommended a Summer meeting with officers of the Michigan State Medical Society and representatives of other groups in Michigan, such as the universities. Dr. Urmston spoke of the advantages of a meeting of the Michigan State Medical Society Executive Committee with the Executive Committee of the State Bar of Michigan, in the near future.

17. *Adjournment.*—The meeting was adjourned at 10:15 p. m.

COUNCIL AND COMMITTEE MEETINGS

1. May 27, 1937—Advisory Committee on Post-graduate Education—Wayne County Medical Society Building, Detroit.
2. June 16, 1937—Executive Committee of The Council—Hotel Statler, Detroit—2:00 P. M.
3. June 16, 1937—Medical Economics Committee—Hotel Statler, Detroit—2:00 P. M.
4. June 23, 1937—Maternal Health Committee—Hotel Statler, Detroit—11:00 A. M.
5. July 13, 1937—Legislative Committee—Hotel Olds, Lansing—6:00 P. M.

SUPPLEMENTARY ROSTER

Berrien County

Gunn, J. W.....Watervliet

Calhoun County

Harris, Rowland W.....Battle Creek

Genesee County

Gutow, I.....Flint

Jefferson, H. A.....Flint

Kurtz, J. J.....Flint

Rynearson, W. J.....Fenton

Irvine, E. A.....Flint

Jickling, D. S.....Flint

Corbett, B. F.....Flint

Streat, R. W.....Flint

Moore, Kenneth.....Flint

Houghton County

Burke, J. J.....Hubbell

Janis, A. J.....Hancock

Stewart, Marshall.....Houghton

Ionia-Montcalm County

Hollard, A. E.....Belding

Jackson County

Nichols, R. H.....Leslie

Quillen, R. D.....Chelsea

Marquette-Alger County Medical Society

McIntyre, D.....Negaunee

Berry, Richard.....Morgan Heights

McCann, N. J.....Ishpeming

Oakland County

Gately, C. R.....Pontiac

Hackett, Daniel.....Pontiac

Wayne County

Ames, Chester C.....Detroit

Altman, Raphael.....Detroit

Bennett, Z. B.....Detroit

Bittker, I. I.....Detroit

Bicknell, Frank B.....Detroit

Carson, Herman J.....Detroit

Cole, Wyman C.....Detroit

Cushman, H. P.....Detroit

Cavell, Roscoe Wm.....Dearborn

Craig, Henry R.....Eloise

Deloney, J. L.....Detroit

Dreyer, A. E.....Detroit

Feneck, Harold B.....Detroit

Frazer, H. F.....Detroit

Falick, Mordecai Louis.....Detroit

Gitlin, Charles.....Detroit

Hodges, Roy W.....Detroit

Hull, Robert C.....Detroit

Heitman, Kenneth A.....Detroit

Humphry, R. C.....Wyandotte

Israel, J. G.....Detroit

Keim, H. L.....Detroit

Lofstrom, James E.....Detroit

Loranger, Guy L.....Detroit

Lovering, William J.....Detroit

Mason, Percy W.....Detroit

McColl, Clarke.....Detroit

McCormick, Francis T.....Detroit

McLaughlin, Nelson.....Detroit

Prendergast, John J.....Detroit

Rexford, Walton K.....Detroit

Robinson, R. G.....Detroit

Sauter, Simon H.....Detroit

Sawicki, B. J.....Detroit

Schiller, A. E.....Detroit

Schmidt, Harry E.....Detroit

Speck, Carlos C.....Detroit

Townsend, Kyle E.....Detroit

Wall, Joseph A.....Detroit

Weiner, I.....Detroit

Whalen, Neil J.....Detroit

COUNTY SOCIETIES

BAY COUNTY

A. L. ZILIAK, M.D.
Secretary

The Bay County Medical Society closed its meetings for the summer recess with a business meeting, Wednesday evening, May 26.

Previous meetings were held as follows:

Wednesday, April 28.—Dr. David Philips, psychiatrist for the Parole Board.

Wednesday, May 12.—Dr. Robert Dieterle, Ann Arbor, "The Mind-Body Problem."

Wednesday, May 19.—A joint meeting with the Bay County Bar Association. This was a most interesting meeting for the discussion of mutual problems.

Wednesday, May 26.—A business meeting at which time the society decided to report to the prosecuting attorney, violations of the use of the title "Doctor." The society also gave Councilor Urmston a vote of confidence and instructed Delegate Perkins to renominate him at the Annual Meeting.

During the last week in June, the society will hold its Annual dinner-dance and Ladies' Night at the Bay City Country Club.

CALHOUN COUNTY

WILFRID HAUGHEY, M.D.
Secretary

The May meeting of the Calhoun County Medical Society was called to order Tuesday evening, May 4, at the American Legion Club House, following dinner, by President Brainard.

The minutes of the April meeting were approved as published in the Bulletin.

The secretary read a communication from the District Nurses Association, thanking us for co-operation in their project of a nurses' register, also as to the holding of 1938 State Nurses' Association meeting in Battle Creek.

Letters were read from the State Secretary with special reference to the Basic Science law, which has passed the house and is now in the Judiciary Committee of the Senate.

The following excerpt from the *Kalamazoo Academy of Medicine Bulletin* was read by the secretary:

"Dr. F. T. Andrews stated he had a communication from Mrs. John Zeedyke relative to unmarried pregnant women. Heretofore, they have been sent to Ann Arbor, the Florence Crittenden Hospital or the Children's Hospital of Detroit. In as much as the two local hospitals, Borgess and Bronson, have been approved and would receive a fee of four dollars per day and the physician would receive a total fee of fifteen dollars for his services, Dr. Andrews suggested that girls in those circumstances go through the economical and medical filter and receive local care."

Dr. Andrews was present as a guest and made some comments. It was decided that we adopt the same plan in Battle Creek and Calhoun County.

There being no further business, Dr. Elmer L. Eggleston was asked to introduce the speaker. Dr. Eggleston told some stories on his friend, then introduced Dr. Harry L. Bockus, of Philadelphia, The Post-graduate School of Medicine.

JULY, 1937

Dr. Bockus commented on our fight for rights of the profession and of the public as against special privilege, and said they had been writing letters and filling out petitions for months in Pennsylvania, where he thought there were the most organized cultists, etc., opposed to everything medical.

He gave a very good talk with lantern slides, showing cases of malignant granulomas of the intestine and kindred conditions. The diagnosis is exacting but depends on a progressive barium meal with x-ray study and hourly readings. The condition so far has responded to surgical treatment.

The discussion included Drs. Eggleston, Mustard, Stiefel, Dickson, Kolvoord, Upson, Capron and Slagle, several of whom reported similar cases.

The meeting adjourned. Attendance at dinner, 51; at meeting, 69.

CASS COUNTY

KENNETH C. PIERCE, M.D.
Secretary

The May meeting of the combined Cass and Berrien County Medical Societies was held in Dowagiac May 20, 1937. About thirty-five members were present.

The meeting was called to order by Dr. S. E. Bryant, President. Business was deferred until a later date in consideration of the long distances several of the speakers had to travel.

The program, which was greatly appreciated by those present, was a "State Society Night." The following officers of the Michigan State Medical Society were on the program and gave short talks concerning the State Society's activities: Dr. Henry E. Perry, of Newberry, President; Dr. L. Fernald Foster, of Bay City, Secretary; Dr. P. R. Urmston, of Bay City, Chairman of Council; Dr. F. T. Andrews, of Kalamazoo, Councillor of the 4th District; Dr. W. Haughey, of Battle Creek, Councillor of the 3rd District; Dr. R. H. Holmes, of Muskegon, Councillor of the 11th District; Wm. J. Burns, Executive Secretary.

The combined societies feel that they are not only better acquainted with the activity of the State Society this year but also now know the leaders in the best showing that our organization has had to date.

Among those present were: Drs. J. H. Kelsey, Cassopolis; W. C. McCutcheon, Cassopolis; William Littlejohn, Bridgman; A. F. Bliesmer, St. Joseph; J. J. McDermott, St. Joseph; C. S. Emery, St. Joseph; J. K. Hickman, Dowagiac; W. R. Lyman, Dowagiac; G. R. Herkimer, Dowagiac; Bertha M. G. Anderson, St. Joseph; W. C. Ellet, Benton Harbor; D. W. Thorup, Benton Harbor; Harry Kok, Benton Harbor; Carl A. Mitchell, Benton Harbor; Stanley E. Bryant, Dowagiac; R. C. Conybeare, Benton Harbor; Harold Cawthorne, Benton Harbor; R. U. Dunnington, Benton Harbor; K. C. Pierce, Dowagiac; and J. H. Jones, Dowagiac.

EATON COUNTY

THOMAS WILENSKY, M.D.
Secretary

The regular May meeting of the Eaton County Medical Society was held on the evening of Thursday, May 27, at the Carnes Tavern, Charlotte. Twenty members, lured by the promise of succulent steaks, sat down to a dinner which fully justified its advance publicity.

Following dinner and the reading of the minutes by the Secretary, President H. A. Moyer called

COUNTY SOCIETIES

upon Dr. B. P. Brown to introduce the speaker, internist Dr. C. C. Corley of Jackson.

Dr. Corley's subject was "Endocrinology and General Practice." In a beautifully outlined, comprehensive survey of all the glands of internal secretion, and dwelling significantly on the pituitary and thyroid glands, the speaker brought to his attentive audience a wealth of information outstanding for its simplicity and practical in its applications. The speaker concluded his talk by showing lantern slides of cases of the "before and after" variety and charts depicting treatment and results. A most enthusiastic vote of thanks was accorded Dr. Corley for this splendid presentation.

The June meeting of the Eaton County Medical Society will be devoted to the transaction of business matters and the election of officers. Your reporter wishes therefore to take this opportunity to broadcast through the medium of the MICHIGAN STATE MEDICAL SOCIETY JOURNAL the appreciation of the officers and members of the Eaton County Medical Society for the splendid clinical programs it has been favored with during the past year. Our speakers were for the most part, men who are not heralded in national circles, but rather, medical men, keenly interested in their work and happy to accept the call to appear before our small society without charge.

Again, let me say, that our programs have been wonderfully fine and our hats are off to these men and their like, whom we consider the finest type of practitioners in the country.

KALAMAZOO COUNTY

LOUIS W. GERSTNER, M.D.

Secretary

The May meeting of the Kalamazoo Academy of Medicine was held the evening of Tuesday, May 17, in the Columbia Hotel. Dr. Wm. Hoebeke, President, presided. The minutes of the previous meeting were approved as printed in the Bulletin.

Mr. Carl C. Blankenburg asked that a committee be appointed from the Academy to cooperate with a group of interested laymen in the formation of plans for a permanent memorial to Dr. A. W. Crane. Dr. Hubbell moved that the chair appoint such a committee. Seconded by Dr. Fast. Carried. Dr. Hoebeke appointed Dr. Crum, as chairman, Drs. Hubbell and Shackleton on this committee.

Discussion of other business was deferred in courtesy to the many guests and to the noted speaker, Dr. Frank H. Lahey.

GENESEE COUNTY

C. W. COLWELL, M.D.

Secretary

The meeting of the Genesee County Medical Society was held at the Dresden Hotel, May 20, 1937, 8 p. m.

The meeting was called to order by President Dr. Alvin Thompson. Minutes of the last meeting were read and approved.

Several communications were read by the Secretary before being placed on file.

A resolution adopted by the Board of Directors at a meeting held May 17, 1937, concerning the health coordinating plan was read by the Secretary.

It was moved by Dr. L. L. Willoughby that the resolution be accepted by the Society. Seconded and passed.

It was moved by Dr. H. E. Randall that the chair appoint six general practitioners, the names of which should be presented to the City Commission

as nominees, two of which could be chosen. Seconded and passed.

Dr. Malfroid spoke for the Maternal Health Committee concerning Mr. Knudsen's fund. He then read a resolution and asked the society to accept it and forward it to Mr. Knudsen. It was moved by Dr. Benson that this be accepted and passed. Seconded and passed.

Dr. Halligan then read a resolution concerning the advisability and necessity of paving Kearsley Street from the now existing pavement of Kensington, so that a better approach would be provided for transportation to St. Joseph's Hospital. He then moved that the Society go on record as unanimously supporting this resolution, and that copy of such be sent to Mr. Pollock.

NORTHERN MICHIGAN

G. B. SALTONSTALL, M.D.

Secretary

The April meeting of the Northern Michigan Medical Society was held on Thursday evening, the eighth, at the Hotel Perry, Petoskey, following dinner at the Laggis Cafe. The meeting was called to order by the President, Dr. E. A. Christie, with nineteen members and the guest speaker present.

The scientific program was given by Dr. William G. Gamble of Bay City. Dr. Gamble's talk and the discussion which followed were very interesting.

A short business meeting followed. Minutes of the March meeting were read and approved. Correspondence received was read and placed on file. An appeal was made to the members to lend all the support possible towards passage of the Basic Science Bill and several members agreed to be present at the Committee hearing in Lansing.

Dr. B. H. VanLeuven read a letter from the State Department of Health announcing the Refresher Course in Pediatrics in May. It was decided to combine our May meeting with the first of the series of lectures on May 4.

The May meeting of the Northern Michigan Medical Society was held at the Hotel Perry, Petoskey, on Tuesday evening, May 4. Twelve members were present when the meeting was called to order by Vice President, Dr. Grillet.

The minutes of the April meeting were read and approved. Necessary business was transacted and then the meeting was turned over to Dr. Van Leuven who in turn introduced Dr. John Sander of Lansing. Dr. Sander gave a very interesting discussion on "New Therapy in Contagious Diseases."

After a discussion of Dr. Sander's paper the meeting was adjourned.

The June meeting of the Northern Michigan Medical Society was held Thursday evening, June 10, at the Hotel Perry, Petoskey. Members present: Drs. Grillet, McClure, Conway, Frank, Stringham, Reed (Hon.), Miller, Larson, Christie, Mast, VanLeuven, Conkle, Saltonstall, Chapman and one guest.

The meeting was called to order with Vice President Grillet in the chair. The minutes of the May meetings were read and approved. Correspondence was read and placed on file. Bills against the Society were read and a motion was made, seconded and passed that checks be drawn for same. Dr. Grillet appointed Drs. VanLeuven and Conkle to the program committee for July.

Moving pictures on "Low Cervical Caesarean," "Resuscitation," "Obstructive Laryngitis," and "Blood Transfusion" were presented and discussed by the members.



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 MRS. FRANK W. HARTMAN, *Press Chairman*, 7440 La Salle Blvd., Detroit.
 MRS. CARL F. SNAPP, *Secretary-Treasurer*, 980 Plymouth Road, S.E., Grand Rapids.

Jackson County

The Woman's Auxiliary of the Jackson County Medical Association has completed a successful and interesting year under the leadership of Mrs. Thomas Hackett as president, and Mrs. John Ludwick, vice president, Mrs. E. A. Thayer, secretary, and Mrs. C. E. Demay, treasurer. Bearing in mind the literal meaning of the word "Auxiliary"—confering aid—the organization has provided a medium for delightful social companionship and has offered a series of programs designed to stimulate the thinking of the members in the fields of legislation and social service. Such programs included a talk by Dr. David A. Phillips, psychiatrist at Southern Michigan State Prison, Dr. Philip Riley, who explained pending legislation affecting the medical profession, Mr. Fred Johnson, Director of the Michigan Children's Bureau, and a series of presentations of the work of local social agencies.

Several delightful programs were presented by members, such as the travel talks by Mrs. E. S. Peterson and Mrs. Walter Finton, the January Musical, in which most of the artists were from the

members, and the one-act drama, depicting a scene in any doctor's waiting room. Perhaps the climax of the year came in the colorful Pageant of the Shawls, presented at the May meeting. Such treasures of Paisley, Cashmere, Czeck, Spanish, Scottish, and other varieties of shawls as the committee discovered in the possession of the club members! But even more surprising was the talent revealed, when former President Stewart appeared as the gentle Irish mother and Mrs. John W. Page, depicting two characters with equal ability, the young woman of the nineties and the emigrant with impedimenta. Guests at this meeting were Mrs. Wenger, president of the State Auxiliary, and Mrs. Snapp, secretary. Mrs. A. M. Shaeffer, Mrs. R. H. Alter and Mrs. George Seybolt were the efficient program committee of the year.

In turning over her office to Mrs. John Ludwick, the president for the coming year, Mrs. Hackett set future goals in the inspiring quotation, "Behind us is infinite power, before us is endless possibility, around us is boundless opportunity."

The auxiliary will entertain the members of the Jackson County Medical Society at a picnic in June.

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OTOLARYNGOLOGY—Two Weeks Intensive Course, starting October 4.

UROLOGY—General Course Two Months; Intensive Course Two Weeks; Special Courses.

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VITAL STATISTICS FOR 1936

Final registration returns for 1936, released by the Bureau of Records and Statistics indicate a total of 54,777 deaths from all causes in Michigan, with a death rate of 10.78 per 1,000 population. This rate was an increase over the 10.05 recorded the previous year and was the highest since 1929.

Birth registrations totaled 88,457, with a birth rate of 17.41 for 1936. The birth rate is higher than in 1935 and continues the gradual rise from the depression-low rate of 15.96 in 1933. The 1936 rate is the highest since 1931.

Marriages registered by the Michigan Department of Health in 1936 reached the highest peak since 1923, with a total of 47,023 and a rate of 18.5 persons married per 1,000 population. Marriages were far in excess of the 28,552 recorded in 1932; and only in 1920, 1923 and 1924, have total marriages ever exceeded the number for last year.

Divorces kept pace with the marriage increase with a high total of 11,419—an approximate ratio of one divorce to every four marriages. Only in 1929 did divorces ever outnumber the total recorded for 1936.

INFANT AND MATERNAL
MORTALITY IN 1936

The Bureau of Records and Statistics reports that Michigan's maternal mortality rate in 1936 was the lowest ever recorded in this state. A total of 425 mothers died from causes connected with childbirth last year—a rate of 4.80 deaths per 1,000 living births. The maternal mortality rates have shown a slow decline during the past decade, but never before 1936 has the rate dropped below five deaths per 1,000 births.

A total of 4,479 infants died in 1936 before they were one year of age. The infant mortality rate was 50.63 per thousand live births. At this rate, approximately one infant in twenty did not live to be one year old. The infant mortality rate is somewhat higher than the 47.71 recorded in 1935, but it is less than the 1934 rate of 52.14.

CASES OF COMMUNICABLE DISEASE
REPORTED IN 1936

Whooping cough led the way in 1936 for the greatest number of cases reported among the communicable diseases, according to statistics released by the Michigan Department of Health. A total of 14,287 cases of whooping cough was closely seconded by 12,650 reported cases of scarlet fever. Tuberculosis ranked in third position with 7,090 cases reported.

There were 6,460 cases of gonorrhea and 6,401 cases of syphilis reported in 1936. Included among the reportable diseases were 6,116 cases of pneumonia, 2,453 cases of measles, 661 cases of diphtheria, 287 cases of typhoid fever, 152 cases of poliomyelitis, 120 cases of meningitis, and 32 cases of smallpox.

Deaths from pneumonia (all forms) totaled 4,096—the highest since 1929. Tuberculosis deaths were slightly higher with a total of 2,100 compared with 2,044 deaths in 1935. Deaths from other reportable diseases were as follows: Scarlet fever, 114; whoop-

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ing cough, 107; diphtheria, 52; typhoid fever, 37; measles, 12; and smallpox, none.

PERSONNEL CHANGES

Dr. Floyd H. DeCamp, assistant in the Bureau of Mouth Hygiene since November 1, 1936, has resigned to accept a position as director of the recently-created dental division of the Oregon State Department of Health. Dr. DeCamp will take over his new duties in June with offices at Portland, Oregon.

Dr. Ronald B. Fox, clinical instructor at the School of Dentistry, University of Michigan, has accepted the position made vacant by Dr. DeCamp's resignation. Dr. Fox will assist Dr. William R. Davis, Director of the Bureau of Mouth Hygiene, in carrying on the field demonstrations and educational programs of the bureau.

A native of New York State, Dr. Fox came to Michigan to receive his A.B. from Hope College. He graduated from the University of Michigan School of Dentistry in 1935, and since that time has served as an instructor there.

ROCKEFELLER FELLOWS STUDY MICHIGAN HEALTH ORGANIZATION

Seven Rockefeller Foundation fellows from various parts of the world will receive practical experience in the organization of state and local health programs in Michigan this summer.

Dr. C. J. W. Beckwith of Cape Breton Island has been assigned to the Saginaw County Health Department. Dr. Richard Monahan of New Brunswick, Canada, will study local health administration under the Genesee County Health Department. Miss Donna E. Kerr, assistant director of the Provincial Board of Health Laboratories of British Columbia, has been assigned to the Michigan Department of Health Laboratories for work in bacteriology.

Dr. D. K. Viswanathan of India will make a general study of the Michigan Department of Health and the local health departments. Other fellows who have been assigned to Michigan include Dr. Antal Petres of the State Hygienic Institute of Budapest; Dr. Marcel Graffar, who is an assistant to Dr. Rene Sand, technical adviser to the Belgian Ministry of Hygiene; and Dr. W. W. Yung, acting director of the health center maintained by Union Medical College of Peiping, China.

MONTHLY INCIDENCE OF COMMUNICABLE DISEASE

The incidence of scarlet fever continues unusually high, with practically no reduction in May as compared to April 1. Although figures are not available for June, it is expected that there will be a reduction during that time in keeping with the usual seasonal trend. The total number of cases so far for the year exceeds that for the same period of 1936 almost threefold. The incidence has been extremely high in Detroit and southeastern Michigan. Oakland and Saginaw counties have been among those with a particularly high incidence. More recently the severity of the disease has apparently increased. A higher percentage of severe and fatal cases are being reported.

Rubella continues to be reported from certain areas but is not widespread over the state. The incidence is apparently not on the increase.

The incidence of measles this year is very low, the same as a year ago. The greatest incidence ever experienced was in the spring of 1935.

Whooping cough incidence is running about normal.

Diphtheria shows some increase, although the

Jour. M.S.M.S.

total incidence remains very low as compared to that of five or ten years ago. This slight increase, particularly in certain areas of the state, should serve as a warning that the disease has not yet been eliminated and may increase at any time.

The smallpox incidence has again returned to a very small figure following the outbreak in Monroe County. Only an occasional case is now being reported.

Several cases of poliomyelitis are being reported—in fact, a few more than for the same period of 1936. There isn't a sufficient number of cases yet to make a prediction as to the probability of an outbreak during the coming summer and autumn.

The incidence of rabies among dogs has increased considerably, and at this time it appears to be on the upgrade. As yet there have been no human cases. The demand upon the Michigan Department of Health for rabies vaccine has been unusual. During the first five months of the year sufficient vaccine was distributed to provide the Pasteur treatment for more than 1,000 persons. The State Department of Agriculture has been striving to control the disease among dogs and has been coöperating with the Department of Health to the end that humans may be protected from the disease.

The Business Side of Medicine

(Continued from page 496)

years and know financial symptoms much as the doctor knows medical symptoms. Although far from infallible such well-chosen advisors can outline for their clients a better program of investment than can the doctor with his more limited knowledge of the field. In a similar manner the well qualified life insurance underwriter is better able to lay out plans in his field of work, just as the real estate specialist is in his.

Invest Conservatively

After protecting the future insofar as possible and after building a solid financial foundation, the way lies open for investment in stock or bonds intended to produce a maximum of income consistent with safety of the principal, and in justice to himself and his patients the doctor should invest conservatively and not allow financial worries to add to his already heavy professional cares.

Worth Knowing—He took her in his arms.

"Oh, darling," he murmured. "I love you so. Please say you'll be mine. I'm not rich like Percival Brown. I haven't a car, or a fine house, or a well-stocked cellar; but, darling, I love you, and I cannot live without you!"

Two soft arms stole around his neck, and two ruby lips whispered in his ear:

"And I love you, too, darling; but—where is this man Brown?"—*London Opinion.*

JULY, 1937

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◆ General News and Announcements ◆

The One Hundred Per Cent Club of the Michigan State Medical Society:

1. Alpena County Medical Society.
2. Branch County Medical Society.
3. Cass County Medical Society.
4. Clinton County Medical Society.
5. Eaton County Medical Society.
6. Gogebic County Medical Society.
7. Ingham County Medical Society.
8. Jackson County Medical Society.
9. Lapeer County Medical Society.
10. Lenawee County Medical Society.
11. Livingston County Medical Society.
12. Luce County Medical Society.
13. Manistee County Medical Society.
14. Menominee County Medical Society.
15. Muskegon County Medical Society.
16. Newaygo County Medical Society.
17. Northern Michigan Medical Society.
18. Oceana County Medical Society.
19. Ontonagon County Medical Society.
20. Schoolcraft County Medical Society.
21. Tuscola County Medical Society.

The above County Medical Societies have paid dues in full for each and every member of the County and State Medical Society. A number of other County Societies lack but a few, sometimes only one or two, of being One Hundred Per Cent. Have YOU paid your dues?

Many friends in the medical profession of Dr. Wm. J. Stapleton, Jr., of Detroit extend their sympathy in the death of Mrs. Stapleton, who died on Tuesday, June 27.

* * *

The Washtenaw Medical and Dental Societies sponsored their First Annual Golf Tournament and Dinner at the Barton Hills Country Club, Ann Arbor, on Thursday, June 24.

* * *

Berrien and Cass County Medical Societies were hosts to the officers of the Michigan State Medical Society at a "State Society Night" program held on May 20 at the Lark-Inn Wigwam in Dowagiac.

* * *

The Kalamazoo Academy of Medicine sponsored a "State Society Night" at the Kalamazoo Country Club on May 27. Officers and Councilors of the Michigan State Medical Society were honored guests.

* * *

Lenawee County Medical Society celebrated "State Society Night" on June 15. Several officers and councilors of the Michigan State Medical Society were present and gave short talks on the activity of the State Society.

* * *

Hear the President of the Pennsylvania State Medical Association, Dr. Maxwell J. Lick of Erie, Pennsylvania, at the coming Annual Convention of the Michigan State Medical Society September 28, in Grand Rapids. Doctor Lick is one of the outstanding orators of the country.

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GENERAL NEWS AND ANNOUNCEMENTS

Dr. and Mrs. C. E. Simpson of Detroit sailed Monday, May 31, for England, where they plan an extensive motor trip and also expect to visit the continent, touching Austria, Germany and France. They will return to Detroit the latter part of August.

* * *

The Andrew P. Biddle Oration given in connection with the Annual Convention of the Michigan State Medical Society will be delivered by Dr. Elliott P. Joslin, Clinical Professor of Medicine, Harvard University Medical School, Boston, on Tuesday evening, September 28.

* * *

Dr. Babcock Resigns—Dr. Warren L. Babcock announced his resignation as superintendent and director of Grace Hospital, Detroit. He has held this position for thirty-four years. The Board of Trustees elected Dr. Edmund F. Collins to fill this place, beginning October 1, 1937. Dr. Babcock was reelected treasurer and elected a member of the Board of Trustees.

* * *

The Local Committee on General Arrangements for the 72nd Annual Convention of the State Society to be held in Grand Rapids September 27 to 30, inclusive, has been appointed by Dr. A. B. Smith, President of the Kent County Medical Society. The personnel of the committee is as follows: Dr. M. S. Ballard, Chairman, Dr. Leon Devel, Dr. Wm. R. Torgerson, Dr. A. V. Wenger, and Dr. Paul Bloxom.

* * *

New Basic Science Laws have been passed in 1937 in Colorado, Oklahoma, Kansas, and Michigan. Those states which enacted Basic Science Laws pri-

or to 1937 are Arizona, 1933; Arkansas, 1929; Connecticut, 1925; Minnesota, 1927; Nebraska, 1927; Oregon, 1933; Washington, 1927; Wisconsin, 1925; and the District of Columbia in 1929.

* * *

Michigan physicians honored at Atlantic City Session of American Medical Association. Dr. H. A. Luce of Detroit was made chairman of the Reference Committee on Rules and Order of Business of the A.M.A. House of Delegates. Dr. J. D. Brook of Grandville was selected as chairman of the Reference Committee on Miscellaneous Business and also a member of the Committee to Propose Amendments to By-laws Providing for Fitting Recognition to Fellows Rendering Distinguished Service in Science and Art of Medicine.

* * *

Mr. James Bechtel, executive secretary of the Wayne County Medical Society, graduated LL.B. from the Detroit College of Law, June 16. Mr. Bechtel is accorded the congratulations and best wishes of all who know him. As a worthy successor of Mr. William J. Burns, now executive secretary of the Michigan State Medical Society, Mr. Bechtel has been tireless in the performance of his duties as executive secretary, as well as in his efforts in obtaining his sheepskin in law. Both Mr. Burns and Mr. Bechtel have degrees in law.

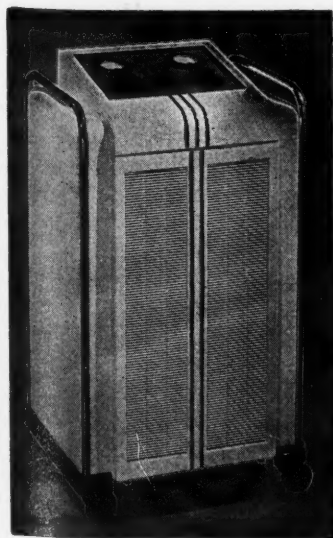
* * *

The Highland Park Physicians' Club is sponsoring a series of articles on health in *The Highland Parker*, weekly newspaper published in Highland Park. The first article, entitled "The Human Body," appeared in the issue of May 27, and is general in nature. Other articles to follow will be contributed by various members under the club name

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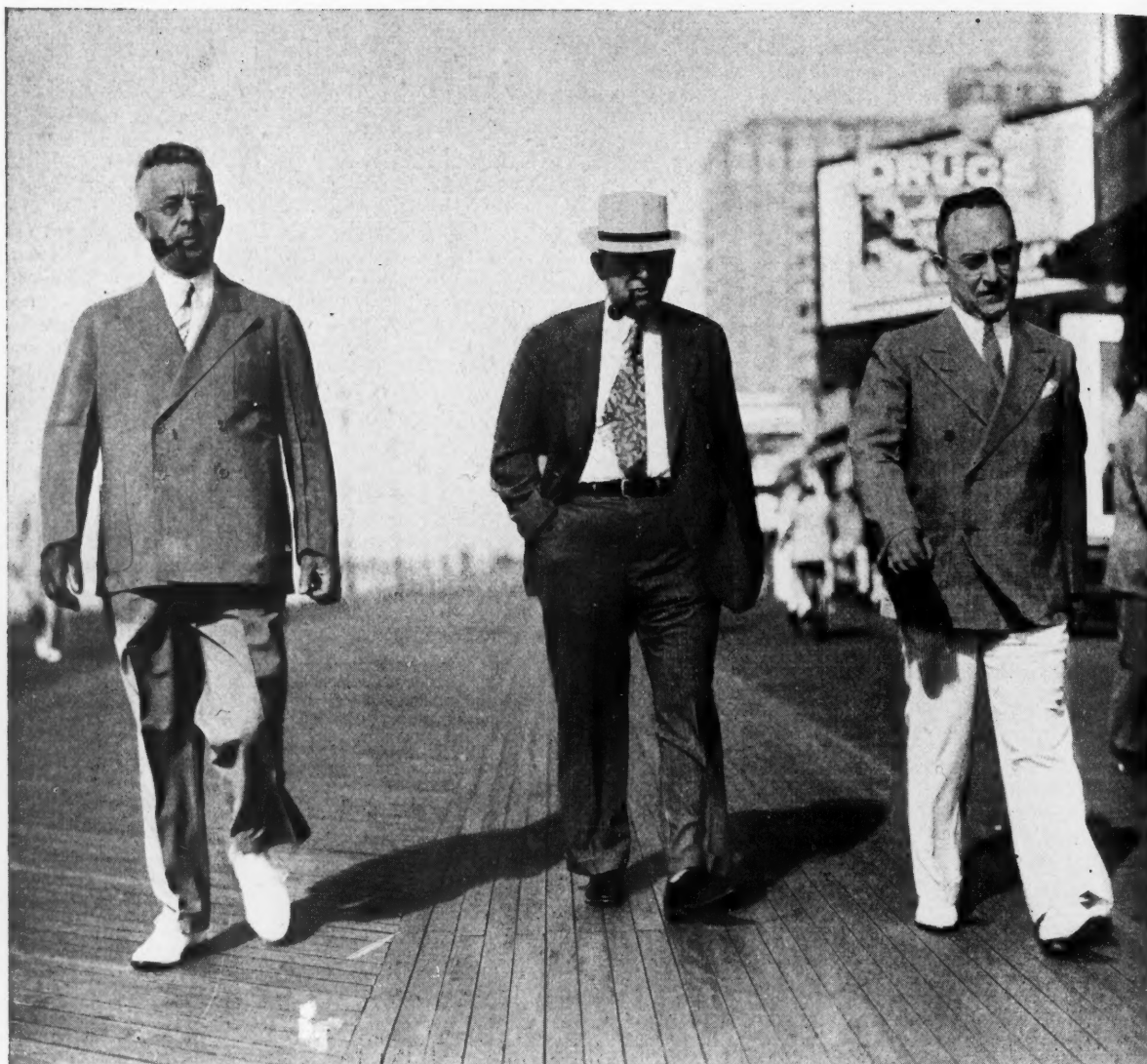
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Dr. Paul Urmston, chairman of the Council of the Michigan State Medical Society, Dr. Henry Cook, president-elect, and Dr. L. Fernald Foster, secretary. They are not out for a constitutional merely, but are on their way on the board-walk at Atlantic City to register for the meeting of the House of Delegates of the American Medical Association.

and will deal more specifically with various aspects of the subject. Readers of the column are invited to submit health questions, in writing, which will be given careful consideration and answered in the column from week to week.

* * *

Physicians attending the Annual Meeting in Grand Rapids next September should secure their hotel reservations early. The following hotels are all located within easy walking distance of the Civic Auditorium, where all Convention activities will be held:

Pantlind Hotel
The Morton Hotel
The Rowe Hotel
The Mertens Hotel
The Browning Hotel

Send in your reservation now to avoid disappointment later.

* * *

The Annual Meeting of the Upper Peninsula Medical Society will be held in Houghton, Michigan, on August 19 and 20. A program on medical economics will be given Thursday morning, August 19.

Many worthwhile scientific papers are planned which will make this annual postgraduate meeting outstanding. All members of the Michigan State Medical Society are cordially invited to attend. This is a splendid opportunity to enjoy a pleasant vacation to the incomparable "Copper Country of Northern Michigan." (See page 430 of June, 1937, JOURNAL for complete program.)

* * *

The American College of Physicians will meet in New York City, April 4-8, 1938. The Twenty-second Annual Session of the American College of Physicians will be held in New York City, with headquarters at the Waldorf-Astoria Hotel, April 4-8, 1938. Dr. James H. Means, of Boston, is President of the College, and will have charge of the program of general scientific sessions. Dr. James Alex Miller, of New York City, has been appointed General Chairman of the Session, and will be in charge of the program of clinics and demonstrations in the hospitals and medical schools and of the program of Round Table Discussions to be conducted at headquarters.

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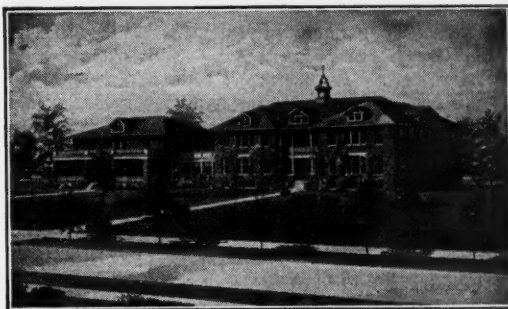
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GENERAL NEWS AND ANNOUNCEMENTS

Crippled and Afflicted Child Commitments for May, 1937:

Crippled child: Total of 230. Of the total number, ninety-one went to University Hospital; and 139 went to miscellaneous hospitals. From Wayne County (included in above totals): Total cases, sixty-seven. Of the sixty-seven cases in Wayne County, seven went to University Hospital, and sixty went to miscellaneous hospitals.

Afflicted child: Total of 1,174 cases, of which 193 went to University Hospital, and 981 went to miscellaneous hospitals. From Wayne County (included in above totals): Total cases, 346. Of the 346 cases in Wayne County, twenty-eight went to University Hospital and 318 went to miscellaneous hospitals.

* * *

The Journal of the College of Medicine of Wayne University will be issued the first week in June and every quarter thereafter. The first issue contains the following articles: Carcinoma of the Ampulla of Vater, by Clarence I. Owen, M.D.; Biliary Tract Disease by Charles G. Johnston, M.D.; Diagnosis of Scrotal Masses by William E. Keane, M.D.; Prerenal Azotemia by Harold Ginsberg, M.D. Several student articles are also included. The entire business and editorial staff is composed of members of the junior and senior classes of the medical college. A faculty alumni board consisting of Doctors Raymond B. Allen, O. A. Brines, J. H. Dempster, C. E. Dutchess, G. B. Myers, D. I. Sugar, C. K. Valade and Mr. M. S. Ryan will act in an advisory capacity.

* * *

The American Congress of Physical Therapy will hold its Sixteenth Annual Session in Cincinnati,

September 20 to 24. "Never before has there been such interest and enthusiasm for an annual session as is being displayed this year for the September meeting," writes A. R. Hollender, Executive Director of the Congress. Plans are being made for a large attendance which will be comfortably housed at the Netherlands Plaza Hotel. Of special interest is the scientific program with its diversified symposia, clinical conference groups, demonstration clinics and sectional meetings. Every specialty in medicine and surgery will be adequately represented. There will be no registration fee but the meeting is open only to duly licensed physicians and properly vouched for technical assistants. Plan now to attend the Congress session in September.

* * *

The Tenth Annual Graduate Fortnight of the New York Academy of Medicine will be held November 1 to 12 and will be devoted to a consideration of *Medical and Surgical Disorders of the Urinary Tract*. The subject will include Bright's disease, arterial hypertension, and infections, tumors, calculi and obstructions of the urinary tract, and will exclude venereal disease, diseases of the genitalia and gynecology. Twenty important hospitals of New York will present coordinated morning and afternoon clinics and clinical demonstrations. At the evening meetings prominent clinicians of New York and many other leading medical centers of this country who are recognized authorities in their special fields will discuss the several aspects of the general subject. The medical profession is invited to attend. A complete program and registration blank may be secured by writing Dr. Mahlon Ashford, The New York Academy of Medicine, 2 East 103rd Street, New York City.

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Kalamazoo Academy State Society Night.

On May 27, some fifty members of the Kalamazoo Academy of Medicine enjoyed a dinner at the Kalamazoo Country Club, to which had been invited the officers of the Michigan State Medical Society. They discussed legislation recently passed relating to medicine, the financial affairs of the state society, and plans for the state convention in Grand Rapids in September.

The state officers taking part in the discussion were Dr. Henry E. Perry, Newberry, state president; Dr. Henry Cook, Flint, president-elect; Dr. L. Fernald Foster, Bay City, secretary; Dr. William Hyland, Grand Rapids, treasurer; Dr. Paul Urmston, Bay City, chairman of the council; Dr. Henry R. Carstens, Detroit, councilor of first district; Dr. L. G. Christian, Lansing, chairman of the legislative committee; and Executive Secretary Wm. J. Burns.

From the success and the genuine enjoyment of fellowship it is hoped that such meetings may be made yearly events.

* * *

Upper Peninsula county medical societies will be hosts to the officers and councilors of the Michigan State Medical Society during a tour to be made by the officers in August. The tentative itinerary for the official visits to the various county medical societies of the Upper Peninsula is as follows:

Monday evening, August 16—Chippewa-Mackinac at Sault Ste. Marie.

Tuesday evening, August 17—Luce and Schoolcraft at Blaney.

Wednesday evening, August 18—Marquette-Alger at Marquette.

Thursday, August 19 and Friday, August 20—Upper Peninsula Medical Society Annual Meeting at Houghton.

Saturday noon, August 21—Houghton-Baraga-Keweenaw at Houghton.

Monday noon, August 23—Ontonagon at Ontonagon.

Monday evening, August 23—Gogebic at Ironwood.

Tuesday evening, August 24—Dickinson-Iron at Iron Mountain.

Wednesday noon, August 25—Menominee at Menominee.

Wednesday evening, August 25—Delta at Escanaba.

Officers making the tour include President Henry E. Perry of Newberry, President-Elect Henry Cook of Flint, Secretary L. Fernald Foster of Bay City, Chairman of The Council P. R. Urmston, Bay City, and Executive Secretary Wm. J. Burns. Others who will make part of the trip are Councilors F. C. Bandy of Sault Ste. Marie and W. A. Manthei of Lake Linden, Chairman of the State Society Legislative Committee L. G. Christian of Lansing, Past President Grover C. Penberthy of Detroit and Delegate to A.M.A. Louis J. Hirschman of Detroit.

* * *

Lenawee County State Society Night. Twenty-two members of the Lenawee County Medical Society were present at the Lenawee Hotel, Adrian, on Tuesday evening, June 15, on the occasion of "State Society Night." Short talks were given by officers and councilors of the Michigan State Medical Society.

Dr. Bernard Patmos, Chairman of the Program Committee, called upon Dr. L. G. Christian, Lansing, Chairman of the State Society Legislative Committee, who gave an interesting talk on the battle to secure passage of the Basic Science Law.

Mr. Wm. J. Burns, Executive Secretary of the State Society spoke of Other Legislative Activity, such as Welfare and relief measures, group hospitalization, narcotic bill, etc.

"The State Society is YOU" was the topic discussed by Dr. Wm. E. Barstow of St. Louis, Councilor from the 8th District. Dr. F. T. Andrews, of Kalamazoo, Councilor of the 4th district, spoke on "Our Job Today." Dr. Philip A. Riley of Jackson, Vice-Speaker of the House of Delegates of the

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State Society, discussed the "Problems facing the House of Delegates." "Postgraduate Pioneering in Michigan" was discussed by Dr. H. H. Cummings of Ann Arbor, Councilor of the 14th District; Dr. James H. Dempster of Detroit, Editor of THE JOURNAL spoke on "The Value of the JOURNAL to the Practitioner." Council Chairman Paul R. Urmston of Bay City talked on "What Keeps the Council Busy." "Preventive Medicine" was discussed by Dr. J. J. O'Meara of Jackson, member of the Preventive Medicine Committee. Dr. Henry Cook of Flint, President-Elect of the Michigan State Medical Society spoke on "The Future Program of Your State Society."

Among those present were:

Dr. F. J. McCue, Hudson; Dr. L. E. Blanchard, Hudson; Dr. W. T. Claxton, Britton; Dr. G. M. Claflin, Deerfield; Dr. H. H. Heffron, Adrian; Dr. Esli T. Morden, Adrian; Dr. A. L. Spalding, Hudson; Dr. O. Whitney, Adrian; Dr. A. B. Hewes, Adrian; Dr. W. E. Colbath, Adrian; Dr. W. L. Peters, Morenci; Dr. G. C. Hall, Adrian; Dr. J. P. Bland, Adrian; Dr. C. S. Lane, Hudson; Dr. P. B. Hardy, Tecumseh; Dr. F. A. Howland, Adrian; Dr. E. C. Raabe, Morenci; Dr. V. J. Murawa, Deerfield; Dr. Bernard Patmos, Adrian; Dr. A. W. Chase, Adrian; Dr. W. S. Mackenzie, Adrian.

* * *

Dr. Burton R. Corbus Chairman of Joint Committee

The Joint Committee on Health Education at its annual meeting on Friday, June 11, at Ann Arbor unanimously elected Dr. Burton R. Corbus of Grand Rapids as chairman for next year to succeed Dr. Alexander G. Ruthven, president of the University of Michigan. In submitting his resignation, Dr. Ruthven stated that the multiplicity of his committee assignments and his firm belief that the chairmanship of the committee should be held by different individuals from time to time prompted him to request that the committee choose a new chairman.

The Joint Committee was organized through the initiative of the Michigan State Medical Society in cooperation with the University of Michigan in 1921. The chairmanship of the Committee has been held by the President of the University of Michigan since the Joint Committee was created. Through the years other organizations have been invited to membership in the Joint Committee until it is now comprised of the following organizations:

Michigan State Medical Society.
University of Michigan.
Michigan Department of Health.
Michigan State Dental Society.
Wayne University College of Medicine and Surgery.
Michigan Hospital Association.
Michigan Tuberculosis Association.
Michigan State Nurses Association.
Wayne County Medical Society.
Michigan State College.
State Conference of Social Work.
State Department of Public Instruction.
Michigan Division American Red Cross.
Probate Judges Association of Michigan.
Michigan Education Association.
Michigan Public Health Association.
Michigan School Health Association.
Michigan Association of Sanitarians.
Michigan Congress of Parents and Teachers.
Woman's Organization for Non-Partisan Reform.
Michigan State Federation of Women's Clubs.
Michigan Home Economics Association.
Michigan Physical Education Association.
Michigan Society for Mental Hygiene.
State Organization of Public Health Nurses.

Dr. Burton R. Corbus has represented the Michigan State Medical Society on the Committee for a number of years and has been actively interested in its program. As chairman, he is particularly well fitted to represent the Michigan State Medical Society and to guide the activities of the Joint Committee next year.

GENERAL NEWS AND ANNOUNCEMENTS

At this early date, fifty-three firms have contracted for exhibit space at the 72nd Annual Convention and Exhibition of the Michigan State Medical Society to be held in Grand Rapids Civic Auditorium, September 27, 28, 29, 30, 1937. Following is a list of exhibitors with home office addresses and the booth number at the Convention:

Name of Firm	City	Booth Number
A. S. Aloe Company	St. Louis, Mo.	A-2
American Seating Company	Grand Rapids, Mich.	F-6
Arlington Chemical Co.	Yonkers, N. Y.	D-8
Bard-Parker Company, Inc.	Danbury, Conn.	B-4
The Borden Sales Co., Inc.	New York City	A-4
Burroughs Wellcome & Company, Inc.	New York City	E-3
S. H. Camp Company	Jackson, Mich.	B-10
Coca-Cola Company	Atlanta, Ga.	B-1
R. B. Davis Sales Corp.	Hoboken, N. J.	E-2
Detroit Branch, American Pharmaceutical Assoc.	Detroit, Mich.	D-2
Detroit X-Ray Sales Co.	Detroit, Mich.	E-8
The Doak Company	Cleveland, Ohio	E-6
The Ediphone Company	Detroit & Grand Rapids	C-8
H. G. Fischer & Company	Chicago, Ill.	A-8 and A-9
General Electric X-Ray Corp.	Chicago, Ill.	F-8
Gerber Food Products	Premont, Mich.	B-3
Hack Shoe Company	Detroit, Mich.	G-2
H. J. Heinz Company	Pittsburgh, Pa.	D-3
Holland-Rantos, Inc.	New York City	F-1
Horlick's Malted Milk Corp.	Racine, Wis.	C-6
G. A. Ingram & Company	Detroit, Mich.	E-4 and E-5
The Jones Surgical Supply Company	Cleveland, Ohio.	F-4
Kellogg Company	Battle Creek, Mich.	C-4
A. Kuhlman & Company	Detroit, Mich.	G-3
Lea & Febiger	Philadelphia, Pa.	D-4
Lederle Laboratories	New York City	C-1
J. B. Lippincott Company	Philadelphia, Pa.	D-5
M. & R. Dietetic Laboratories	Columbus, Ohio	D-6
McIntosh Electrical Corp.	Chicago, Ill.	F-5
Mead Johnson & Company	Evansville, Ind.	B-5 and B-6
Medical Arts Pharmacy	Grand Rapids, Mich.	C-2 and C-3
Medical Case History Bureau	New York City	A-7
Medical Protective Company	Wheaton, Ill.	A-3
Merck & Company	Rahway, N. J.	B-7
The Wm. S. Merrell Co.	Cincinnati, Ohio	B-9
Middlewest Instrument Co.	Chicago, Ill.	E-1
Philip Morris Co., Ltd.	New York City	B-8
C. V. Mosby Company	St. Louis, Mo.	A-6
Parke Davis & Company	Detroit, Mich.	G-9, G-10 G-11, G-12
Pelton & Crane Company	Detroit, Mich.	A-5
Petrolagar Laboratories, Inc.	Chicago, Ill.	D-1
Physicians Equipment Exchange	Detroit, Mich.	C-7
Picker X-Ray Corporation	Chicago, Ill.	F-3
Professional Management	Battle Creek, Mich.	G-8
Randolph Surgical Supply Company	Detroit, Mich.	H-9
W. B. Saunders Company	Philadelphia, Pa.	B-2
Standard X-Ray Equipment Co.	Detroit, Mich.	E-7
E. R. Squibb & Sons	New York City	C-5
Van Hoosen Farm	Rochester, Mich.	G-7
Wall Chemicals Co.	Detroit, Mich.	D-10
Western Electric Hearing Aids	Detroit, Mich.	G-13
The Zemmer Company	Pittsburgh, Pa.	F-2
Zimmer Manufacturing Co.	Warsaw, Ind.	B-12

Doctor, if there are other firms with which you are dealing, invite and urge them (through their detail men) to enter a display in the M.S.M.S. Exhibit at Grand Rapids. Please send the firm's name to your Executive Office, 2020 Olds Tower, Lansing.

Many Michigan physicians attended Atlantic City Session of American Medical Association June 7 to 11, inclusive. Nearly 200 physicians from all parts of Michigan registered at the Eighty-Eighth Annual Convention of the A. M. A. held in the mighty

July, 1937



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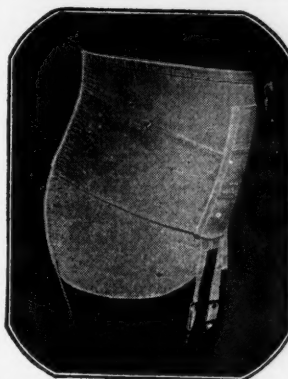
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GENERAL NEWS AND ANNOUNCEMENTS

Convention Auditorium at Atlantic City, New Jersey. The total registration which was near the ten thousand mark included physicians from every state in the United States. Among those from Michigan who registered were the following:

Drs. Max Abramson, Detroit; Herman Albrecht, Detroit; I. M. Altshuler, Detroit; Louis J. Bailey, Detroit; William C. Behen, Lansing; Harry S. Berman, Detroit; Robert Berman, Detroit; Albert Bernstein, Detroit; Robert M. Bradley, Flint; J. D. Brook, Grandville; A. L. Brooks, Detroit; W. L. Brosius, Detroit; George M. Brown, Bay City; O. A. Brines, Detroit; J. D. Bruce, Ann Arbor; G. Clare Bishop, Almont; John C. Bugher, Lansing; Jacob H. Burley, Port Huron; Samuel A. Butler, Pontiac; Nils O. Byland, Battle Creek; George H. Caldwell, Kalamazoo; Don M. Campbell, Detroit; L. A. Campbell, Saginaw; R. H. Campbell, St. Clair; Donald Chandler, Grand Rapids; Ferdinand Chenik, Detroit; W. R. Chynoweth, Battle Creek; William R. Clinton, Detroit; Richard C. Connelly, Detroit; Henry Cook, Flint; E. L. Cooper, Detroit; Moses Cooperstock, Marquette; John J. Corbett, Detroit; Burton R. Corbus, Grand Rapids; Albert S. Crawford, Detroit; Milton A. Darling, Detroit; James E. Davis, Ann Arbor; Russell DeJong, Ann Arbor; Leon DeVel, Grand Rapids; L. H. Denham, Grand Rapids; J. Lewis Dill, Detroit; Malcolm P. Dillard, Detroit; Howard P. Doub, Detroit; Bruce H. Douglas, Detroit; George G. Downer, Detroit; James C. Droste, Grand Rapids; Donald C. Durman, Saginaw; Charles E. Dutchess, Detroit; Elmer L. Eggleston, Battle Creek; Robert J. Elvidge, Detroit; Lloyd L. Ely, Detroit; Joseph Eschbach, Dearborn; C. G. Fahndrich, Battle Creek; Meryl M. Fenton, Ann Arbor; Ward S. Ferguson, Grand Rapids; Mary Margaret Frazer, Detroit; Daniel P. Foster, Detroit; L. Fernald Foster, Bay City; Hugo Freund, Detroit; Warren E. Forsythe, Ann Arbor; A. C. Furstenberg, Ann Arbor; W. G. Gamble, Jr., Bay City; Wm. H. Gordon, Detroit; S. E. Gould, Eloise; Gerald O. Grain, Detroit; Lucile R. Grant, Grand Rapids; T. R. K. Gruber, Eloise; E. Walter Hall, Detroit; Eugene A. Hand, Saginaw; F. W. Hartman, Detroit; Jesse T. Harper, Detroit; L. C. Harvie, Saginaw; Clyde K. Hasley, Detroit; Parker Heath, Detroit; M. H. Hoffman, Eloise; Thomas W. K. Hume, Auburn Heights; Dan R. Herkimer, Lincoln Park; Charles L. Hess, Bay City; L. J. Hirschman, Detroit; Fred J. Hodges, Ann Arbor; Don M. Howell, Alma; Louis Hromadko, Detroit; A. M. Hume, Owosso; Robert Jenichen, Saginaw; W. J. Johnson, Ann Arbor; Reuben L. Kahn, Ann Arbor; Louis E. Kamin, Detroit; David M. Kane, Sturgis; Henry J. Kehoe, Detroit; H. L. Keim, Detroit; J. C. Kenning, Detroit; C. R. Keyport, Grayling; Fred C. Kidner, Detroit; N. A. Kilgore, Detroit; Melbourne King, Detroit; Herbert I. Kollet, Detroit; Harold J. Kullman, Detroit; Leonard Lang, Detroit; R. Leiser, Eloise; Harry Loeffers, Grand Rapids; Ezra Lipkin, Detroit; Bruce C. Lockwood, Detroit; Maurice C. Loree, Lansing; E. J. Lynch, Detroit; Aileen MacKenzie, Ypsilanti; Joseph E. Malcomson, Detroit; E. G. Martin, Detroit; W. H. Martin, Detroit; Earl W. May, Detroit; Carey P. McCord, Detroit; Thomas A. McDonald, Monroe; D. B. McDowell, West Branch; Alexander R. McKinney, Saginaw; Howard McNeill, Pontiac; F. M. Meader, Detroit; Jacob E. Meengs, Detroit; Clarence M. Mercer, Battle Creek; E. W. Meredith, Port Huron; Solomon G. Meyers, Detroit; N. F. Miller, Ann Arbor; Robert C. Moehlig, Detroit; Raymond Moon, Saginaw; Gordon B. Myers, Detroit; Robert J. Morrow, Lansing; Dwight J. Mosier, Bay City; C. L. A. Oden, Muskegon; Dayton H. O'Donnell, Detroit; Frank W. Ostrander, Freeland; B. M. Overholt, Battle Creek; Walter R. Parker, Detroit; Edward J. Panzner, Detroit; Max M. Peet, Ann Arbor; Grover C. Penberthy, Detroit; Ralph A. Perkins, Detroit; A. W. Petersohn, Battle Creek; J. P. Pratt, Detroit; John J. Prendergast, Detroit; Henry J. Pyle, Muskegon; Clara V. Radabaugh, Battle Creek; John O. Ralston, Detroit; Leo P. Rennell, Detroit; Herbert F. Robb, Belleville; J. Milton Robb, Detroit; Edward R. Robbins, Detroit; Harold D. Rubin, Saginaw; Ralph C. Rueger, Detroit; Harry C. Saltstein, Detroit; David J. Sandweiss, Detroit; Susanne Sanderson, Detroit; John F. Sander, Lansing; Bertha L. Selmon, Battle Creek; Loren W. Shaffer, Detroit; Burt R. Shurly, Detroit; N. R. Sherman, Bay City; I. Sicotte, Michigamme; George W. Slagle, Battle Creek; Donald C. Somers, Detroit; Emil Sorock, Detroit; R. Earle Smith, Grand Rapids; Ferris Smith, Grand Rapids; Eugene J. Steinberger, Detroit; Louis J. Steiner, Detroit; Rolin H. Stevens, Detroit; Walter S. Stinson, Bay City; J. M. Sutherland, Detroit; Milton J. Steinhart, Highland Park; D. C. Stephens, Howell; Frank Stiles, Lansing; Claire L. Straith, Detroit; Don F. Strohschein, Detroit; Franklin H. Top, Detroit; V. L. Tupper, Bay City; P. R. Urmston, Bay City; C. K. Valade, Detroit; Henry F. Vaughan, Detroit; J. D. Vyn, Grand Rapids; Elmore C. VonderHeide, Detroit; R. V. Walker, Detroit; John L. Wetzel, Lansing; Bruce Whyte, Battle Creek; A. B. Wickham, Detroit; A. V. Wenger, Grand Rapids; Sherwood B. Winslow, Ann Arbor; Walter J. Wilson, Sr., Detroit; H. C. Wissman, Detroit; Robert A. C. Wollenberg, Detroit; C. J. Williams, Grosse Pointe; Edward A. Wishropp, Detroit; Don A. Young, Detroit; I. J. Zimmerman, Detroit; * * * Mr. Wm. J. Burns, Lansing; Mr. James A. Bechtel, Detroit.

Upper Peninsula Medical Society—The Fortieth Annual Meeting of the Upper Peninsula Medical Society will be held at Houghton, Michigan, on August 19 and 20. A splendid and varied program is being provided. Among the speakers are the following: Dr. Herman L. Kretschmer, Chicago, Personal Experiences in the Treatment of Bladder Neck Obstructions by Means of Transurethral Electroresection (Review of 1,000 Cases). Dr. David A. Cleveland, Milwaukee, Late Results of Intracranial Brain Trauma. Dr. Michael L. Mason, Chicago, Management of Felon, Tenosynovitis and Acute Spreading Infection of the Hand. Drs. John S. Lundy and Richard C. Adams, Rochester, Minn., Methods of Anesthesia and a Method of Blood Transfusion for the General Practitioner. Dr. John D. Steele, Jr., Ann Arbor, Treatment of Empyema. Dr. Henry K. Ransom, Ann Arbor, Acute Surgical Lesions of the Abdomen. Dr. Avery D. Prangen, Rochester, Early Treatment of Strabismus as Related to the General Practitioner. Dr. Frank N. Wilson, Ann Arbor, Coronary Occlusion. Dr. Howard K. Cummings, Ann Arbor, Importance of Examinations of the Cervix Uteri. Dr. Geza de Takats, Chicago, Vascular Accidents of the Extremities. Dr. Vernon L. Hart, Minneapolis, Orthopedic Surgery.

* * *

VENEREAL DISEASE CONTROL PROGRAM FOR MICHIGAN

Plan of the Michigan State Medical Society

1. We believe that the medical profession of the State of Michigan will give full and spirited coöperation to the national program aimed at the control of venereal diseases.
2. We believe that such a program can be more effectively carried out, at less expense to the taxpayer and with more permanency in results once the program is under way, if the family physician can be made an important cog in this program.
3. We believe the education and coöperation of the physicians of Michigan can be effectively secured and more rapidly carried out, than the establishment and manning of state-wide clinics. This, we believe, is true because of the unusual unity and organization of the Michigan State Medical Society as evidenced by:
 - (a) Our public relations committee with a representative in every county society.
 - (b) Our well organized system of postgraduate instruction.
 - (c) The success of other campaigns calling for state-wide coöperation such as the maternal and infant welfare campaign.
 - (d) The policy of our State Medical Society of giving refresher courses and sending out clinical teams to non-metropolitan areas in such coöperative campaigns.
 - (e) The proposed establishment of medical coordinators acting as personal interviewers to the profession.
 - (f) Well established clinics in our metropolitan areas for diagnostic centers and practical courses in technical procedures.
 - (g) Bureau of Information of the Michigan State Medical Society which reaches the people of the entire state through 425 newspapers.
 - (h) The joint committee on Health Education with offices at the University of Michigan which collaborates with the Michigan State Medical Society in lay education.
 - (i) Weekly radio broadcasts over 18 stations under the Michigan State Medical Society.
 - (j) The JOURNAL OF THE MICHIGAN STATE

COUNTY SOCIETIES

BRANCHES OF THE MICHIGAN STATE MEDICAL SOCIETY

COUNTY SOCIETY	PRESIDENT	SECRETARY	MEETINGS	
			Regular	Annual
Allegan	G. H. RIGTERINK Hamilton	M. B. BECKETT Allegan	1st Tuesday	1st Tuesday December
Alpena-Alcona- Presque Isle.....	DR. C. A. CARPENTER Onaway	HAROLD KESSLER Alpena	Last Thursday 6:00 p. m.	Last Thursday December
Barry	H. S. WEDEL Freeport	G. F. FISHER Hastings	2nd Thursday 8:00 p. m.	1st Thursday January
Bay-Arenac-Iosco- Gladwin	DR. A. D. ALLEN Bay City	A. L. ZILIAK Bay City	2nd and 4th Wednesday (ex- cept July, Aug., Sept.) 6:00 p. m.	2nd Wednesday December
Berrien	C. S. EMERY St. Joseph	A. F. BLIESMER St. Joseph	2nd Wednesday or Thursday	2nd Wednesday or Thursday, December
Branch	BERT W. CULVER Coldwater	F. S. LEEDER Coldwater	3rd Thursday 6:30 p.m.	3rd Thursday December
Calhoun	C. W. BRAINARD Battle Creek	WILFRID HAUGHEY Battle Creek	1st Tuesday (except July and Aug.)	1st Tuesday December
Cass	S. E. BRYANT Dowagiac	K. C. PIERCE Dowagiac	2nd Wednesday or Thursday	December 15
Chippewa- Mackinac	F. J. MOLONEY Sault Ste. Marie	GEO. A. CONRAD Sault Ste. Marie	1st Friday	1st Friday December
Clinton	A. C. HENTHORN St. Johns	T. Y. HO St. Johns	1st Tuesday 7:30 p. m.	1st Tuesday October
Delta	H. Q. GROOS Escanaba	NATHAN J. FRENN Bark River	1st Thursday 8:30 p.m.	December 2
Dickinson-Iron	D. R. SMITH Iron Mountain	W. H. HURON Iron Mountain	1st Thursday 6:30 p. m.	1st Thursday December
Eaton	H. A. MOYER Eaton Rapids	THOMAS WILENSKY Eaton Rapids	Last Thursday	No set date
Genesee	ALVIN N. THOMPSON Flint	C. W. COLWELL Flint	2nd and 4th Tuesday (except July and August)	2nd Tuesday November
Gogebic	C. C. URQUHART Ironwood	F. L. S. REYNOLDS Ironwood	3rd Tuesday	3rd Tuesday December
Grand Traverse- Leelanau-Benzie ..	DWIGHT GOODRICH Traverse City	E. F. SLADEK Traverse City	1st Tuesday 8:00 p. m.	1st Tuesday December
Gratiot-Isabella- Clare	KENNETH P. WOLFE Breckenridge	RICHARD L. WAGGONER St. Louis	3rd Thursday	3rd Thursday December
Hillsdale	LUTHER W. DAY Jonesville	E. G. MCGAVRAN Hillsdale	1st Tuesday	1st Tuesday January
Houghton-Baraga- Keweenaw	L. E. COFFIN Painesdale	C. A. COOPER Hancock	1st Tuesday	1st Tuesday January
Huron-Sanilac	F. O. KIRKER Sandusky	E. W. BLANCHARD Deckerville	2nd Thursday	2nd Thursday December
Ingham	MILTON SHAW Lansing	R. J. HIMMELBERGER Lansing	3rd Tuesday 6:30 p. m.	3rd Tuesday December
Ionia-Montcalm	A. I. LAUGHLIN Clarksville	JOHN J. McCANN Ionia	2nd Tuesday 7:00 p. m.	2nd Tuesday December
Jackson	E. D. CROWLEY Jackson	H. W. PORTER Jackson	3rd Tuesday 6:30 p. m.	3rd Tuesday December
Kalamazoo- Van Buren	W. G. HOEBEKE Kalamazoo	L. W. GERSTNER Kalamazoo	3rd Tuesday 7:30 p. m.	3rd Tuesday December
Kent	A. B. SMITH Grand Rapids	J. M. WHALEN Grand Rapids	2nd and 4th Wednesday 8:15 p. m.	2nd Wednesday December
Lapeer	H. M. BEST Lapeer	CLARK DORLAND Lapeer	2nd Thursday	December or January
Lenawee	A. W. CHASE Adrian	ESLI T. MORDEN Adrian	3rd Tuesday	3rd Tuesday December
Livingston	H. L. SIGLER Howell	DUNCAN C. STEPHENS Howell	1st Friday 6:30 p. m.	1st Friday December
Luce	GEO. F. SWANSON Newberry	A. T. REHN Newberry	1st Tuesday 8:00 p. m.	1st Tuesday December
Macomb	JOSEPH N. SCHER Mt. Clemens	R. F. SALOT Mt. Clemens	1st Monday 12:00 noon	1st Monday December
Manistee	KATHRYN BRYAN Manistee	C. L. GRANT Manistee	Every Monday noon	3rd Thursday January
Marquette-Alger	E. R. ELZINGA Marquette	D. P. HORNBOKEN Marquette	No set date	December
Mason	W. S. MARTIN Ludington	CHAS. A. PAUKSTIS Ludington	No set time	No set time
Mecosta-Osceola	THOMAS P. TREYNOR Big Rapids	GLENN GRIEVE Big Rapids	2nd Tuesday	2nd Tuesday December

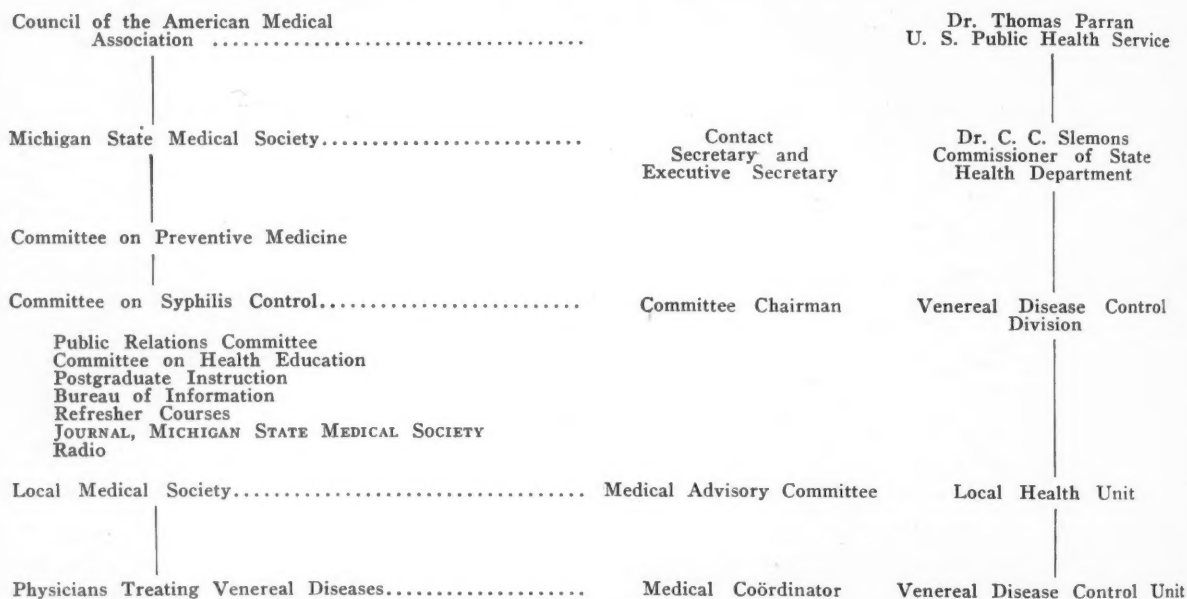
Menomonee
Midland
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Saginaw
School
Shaw
St. Clair
St. Joseph
Tuscola
Washtenaw
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M

that physicians treating such cases be compensated for the care of the indigent and borderline cases on a fee per treatment basis.

4. A well organized local Health Department on a full-time basis with technically trained personnel in coöperation with a committee of the local or County Medical Society is considered as essential to the carrying out of such a program. These units must have ample and continuous funds. There should be consultation service for the area and special laboratory work. An important duty would be to assist physicians in source and contact finding and follow up work as well as supply a medical co-ordinator as intermediary between the medical practitioners and the local health department.
 5. Preparation of coöperating physicians, both with respect to approved plan of operation and technics of the various services to be rendered, should be continuously provided.
 6. Laboratory service for the diagnosis and free drugs for the treatment of syphilis should be supplied to the profession. It is recommended
 7. It is desirable that in as far as possible a uniform plan be put in effect in all sections of the state. Treatment of venereal diseases by private physicians would be most effective in rural communities or even in cities because of a fear by patients of stigmatization. The proposed plan we feel can be applied with success and uniformity throughout the state.
 8. Because of these exceptional means of reaching our local profession we would like to request that lay information as a part of the national educational program and particularly that referring specifically to treatment standards, be withheld until this program can be approved and put into execution.
- The dual character of this plan with dependence upon both the health department and the medical profession as well as contacts and means of co-ordination can best be shown by the accompanying outline.

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(Continued from page 517)

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Midland	WILBUR D. TOWSLEY Midland	N. C. GREWE Midland		
Monroe	O. E. PARMELEE Lambertville	FLORENCE AMES Monroe	3rd Thursday (except July and Aug.)	3rd Thursday October
Muskegon	C. B. MANDEVILLE Muskegon	L. E. HOLLY Muskegon	Last Friday 6:00 p. m.	2nd Friday December
Newaygo	A. C. TOMPSETT Hesperia	W. H. BARNUM Fremont	As called	3rd Tuesday December
Northern Mich. (Antrim- Charlevoix- Emmet- Cheboygan)	E. A. CHRISTIE Cheboygan	GILBERT B. SALTONSTALL Charlevoix	2nd Thursday 6:00 p.m.	2nd Thursday December
Oakland	PALMER E. SUTTON Royal Oak	O. O. BECK Birmingham	3rd Tuesday (except July and Aug.)	3rd Tuesday December
Oceana	V. W. JENSEN Shelby	FRED A. REETZ Shelby	No definite date set	December
O.M.C.O.R.O. (Otsego- Montmorency- Crawford-Oscoda- Roscommon- Ogemaw)	R. J. BEEBY West Branch	C. G. CLIPPERT Grayling	On call	December
Ontonagon	C. F. WHITESHIELD Trout Creek	E. J. EVANS Ontonagon	On call	January
Ottawa	W. B. BLOEMENDAL Grand Haven	K. N. WELLS Spring Lake	2nd Tuesday Noon	2nd Tuesday December
Saginaw	L. C. HARVIE Saginaw	H. C. WALLACE Saginaw	3rd Tuesday 8:30 p. m.	3rd Tuesday December
Schoolcraft	A. R. TUCKER Manistique	GEO. A. SHAW Manistique	On call	January 10
Shiawassee	C. M. WILCOX Owosso	R. J. BROWN Owosso	3rd Thursday Noon	3rd Thursday December
St. Clair	H. O. BRUSH Port Huron	GEO. M. KESL Port Huron	1st and 3rd Tuesdays Oct. to June	3rd Tuesday December
St. Joseph	JOHN O'DELL Three Rivers	JOHN W. RICE Sturgis	1st Thursday 6:30 p. m.	1st Thursday March
Tuscola	H. A. BARBOUR Mayville	B. H. STARMANN Cass City	2nd Thursday 8:00 p. m.	2nd Thursday November
Washtenaw	REED NESBIT Ann Arbor	L. J. JOHNSON Ann Arbor	2nd Tuesday	2nd Tuesday December
Wayne	C. E. UMPHREY Detroit	J. A. HOOKEY Detroit	Every Monday 8:45 p. m. (Oct. to May, incl.)	3rd Monday in May
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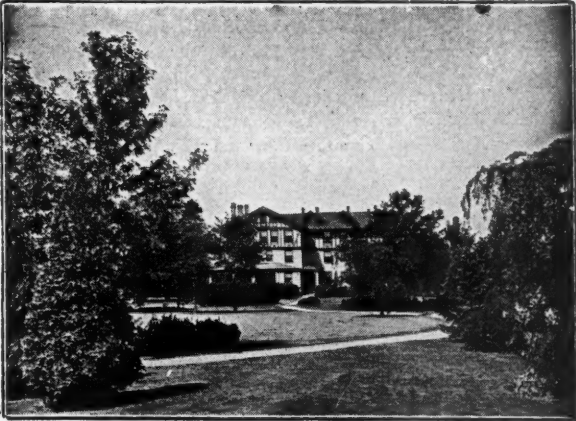
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THE DOCTOR'S LIBRARY

Acknowledgment of all books received will be made in this column and this will be deemed by us a full compensation to those sending them. A selection will be made for review, as expedient.

HANDBOOK OF ORTHOPÆDIC SURGERY. By Alfred Rives Shands, Jr., B.A., M.D. Associate Professor of Surgery in charge of orthopædic surgery, Duke University School of Medicine, and Chief of the Orthopædic Service, Duke Hospital, Durham, North Carolina; Member of the American Orthopædic Association, The American Academy of Orthopædic Surgeons, and the International Society of Orthopædic Surgeons. In collaboration with Richard Beverly Raney, B.A., M.D., Instructor in Orthopædic Surgery, Duke University School of Medicine. With 169 illustrations. St. Louis, The C. V. Mosby Company, 1937.

In this work the author has made no pretension of covering the subject with completeness, but has presented the fundamental facts and principles of orthopedic surgery in a manner that will appeal to the student and general practitioner. It is concise, yet in sufficient detail to convey a well rounded knowledge of the subject. He has arranged the subject matter so that there is a chapter on congenital deformities and another on affections occurring in growing bone as well as one on those that occur in adult bone. His treatment of the diseases of the neuromuscular system, including anterior poliomyelitis, is well presented. Infectious processes in bones and joints are covered, with special chapters on tuberculosis. Several chapters are given to those deforming affections that affect the static mechanisms of the body. Of special interest is the chapter on affections of the low back.

SURGICAL PATHOLOGY OF THE THYROID GLAND. By Arthur E. Hertzler, M.D. Surgeon to the Agnes Hertzler Memorial Hospital, Halstead, Kansas. Professor of Surgery, University of Kansas. 238 illustrations. Philadelphia, Montreal and London. J. B. Lippincott Company.

This is one of a series of monographs by Dr. Hertzler on surgical pathology. In this volume the various pathologic conditions of the thyroid gland, as classified by the author, are discussed from the standpoint of surgical pathology. The language is concise and clear, and there are many illustrations showing photographs of the clinical condition as seen in the patient, together with many photographs of gross specimens and of microscopic preparations. This volume would be a valuable addition to the library of the surgeon.

CLINICAL REVIEWS OF THE PITTSBURGH DIAGNOSTIC CLINIC: GUIDE POSTS TO MEDICAL DIAGNOSIS AND TREATMENT. Edited by H. M. Margolis, B.S., M.D., F.A.C.P., Contributors, H. M. Margolis, M.D., H. G. Schleiter, C. H. Marcy, M.D., C. C. Mechling, M.D., R. R. Snowden, M.D., L. H. Crip, M.D., G. W. Grier, M.D., and H. A. Anderson, D.D.S. Pages, 552. Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers, Journal Michigan State Medical Society, 1937. Price, \$5.50.

Among the subjects discussed are constitutional biologic inadequacy, the psychoneuroses, attacks of unconsciousness and convulsive seizures, endocrinology and endocrine therapy, abnormalities of growth of pituitary origin and their treatment, the basal metabolic rate and its interpretation, concerning some diagnostic features of hyperthyroidism, hypothyroidism, Addison's disease, the diabetic comas of age, protamine insulin, fundamental facts in obesity, focal infection, several chapters on arthritis, coronary disease, and general interpretation of the electrocardiogram—forty-five chapters in all.

Each chapter is a delightful discussion of the subject embodying present day teaching. Each chapter also contains a bibliography of suggested reading. All the subjects discussed are very vital to medicine and surgery. The work cannot be commended too highly for what it is intended, namely, as a volume of clinical reviews of the various subjects in medicine.

INFANTILE PARALYSIS AND CEREBRAL DIPLEGIA. By Elizabeth Kenny, with a foreword by Herbert J. Wilkinson, Professor of Anatomy and Dean of the Faculty of Medicine, University of Queensland.

The author is a trained nurse who has the endorsement of prominent members of the medical profession who are acquainted with her work. The writer of the foreword maintains that her treatments are given only under medical supervision.

A BRIEF OUTLINE OF MODERN TREATMENT OF FRACTURES. By H. Waldo Spiers, A.B., M.D., Professor of Orthopedic Surgery and Fracture Surgery, College of Medical Evangelists, Los Angeles. Second edition, Baltimore. William Wood and Company, 1937.

This little book of 137 pages covers the more important fractures. The illustrations are in line drawings. It is convenient for ready reference.

PERSONAL HYGIENE. By C. E. Turner, M.A., Dr.P.H., Professor of Biology and Public Health in the Massachusetts Institute of Technology; with eighty-four illustrations and three colored plates. Price, \$2.25. St. Louis: C. V. Mosby Company, 1937.

This is a non-technical work designed for college students and other lay persons interested in the subject of personal hygiene. It is highly recommended for lay readers.

OCULAR FUNDUS IN DIAGNOSIS AND TREATMENT. By Donald T. Atkinson, M.D., F.A.C.S. Lea & Febiger, Washington Square, Philadelphia. Price, \$10.00.

With the increasing significance of the ocular fundus in relationship to general disease, it is refreshing to pick up a small volume so complete, readable and satisfactory as these 136 pages of large print reading matter. There are 48 drawings and 58 colored plates, adequately described. This book will qualify as a practical contribution to the library of any practitioner of medicine and especially so to the ophthalmologist, neurologist and internist.

MECHANICS OF NORMAL AND PATHOLOGICAL LOCOMOTION IN MAN. By Arthur Steindler, M.D., F.A.C.S., Professor of Orthopedic Surgery in the State University of Iowa, Iowa City, Iowa. 424 pages. Charles C. Thomas, Springfield, Ill., and Baltimore, Md., Price \$6.00.

Steindler's book is a thorough text and reference work on the human locomotor apparatus. The physics of joint and muscular movement are effectively treated. All parts of the trunk and appendicular region are considered and abnormal as well as normal body mechanics are dealt with. The work will form an essential part of an orthopedic library. It is well illustrated by diagrams, photographs and drawings; it contains numerous references and a suitable index.

THE FOOT. By Norman C. Lake, M.D., M.S., D.Sc. (Lond.), F.R.C.S. (Eng.), Senior Surgeon and Lecturer on Surgery, Charing Cross Hospital; Surgeon, Bolingbroke Hospital; Director of Studies, London Foot Hospital; External Examiner in Surgery, Victoria University, Manchester; Late Senior Examiner in Surgery, University of London. 330 pages. Wm. Wood & Co., Baltimore, 1935. Price \$4.50.

In the November, 1936, JOURNAL, Morton's work on "The Human Foot" was reviewed. The present work dovetails beautifully with the former book, which was a biological study of the foot from both the structural and functional viewpoint. Though the

IN MEMORIAM

Dr. James A. MacMillan

Dr. James A. MacMillan of Detroit died at his summer home in Kingsville, Ontario, Monday, July 5, 1937. Dr. MacMillan was born at Strathroy, Ontario, in 1862. He received his early education in the Strathroy public schools. He later graduated with the degree of B.A. in 1887 and after normal school training taught for three years at Owen Sound and London, Ontario. He studied medicine and received his degree from the Toronto Medical School in 1893, following which time he located in Detroit. After ten years of practice in Detroit he pursued postgraduate work in surgery in London, England, returning to Detroit, where he had been in practice up to his death. He was for a number of years a member of the faculty of the Detroit College of Medicine. He was also attending surgeon at Providence Hospital, clinical proctologist at Harper Hospital and consulting proctologist at Receiving Hospital, Detroit. He was for many years divisional surgeon for the Pennsylvania Railroad. Dr. MacMillan was a Fellow of the American College of Surgeons, president of the Wayne County Medical Society in 1913, president of the Detroit Academy of Surgery in 1924. He was also a member of the Wayne County, Michigan State and American Medical Associations. He is survived by his wife and two sons, Dr. Francis B. MacMillan and Mr. Alexander R. MacMillan of Detroit.

* * *

Albert B. Walker

Dr. A. B. Walker died on April 11, 1937, following an illness of several months.

Dr. Walker was born in Toronto, Ontario, in 1872. As a young man he left Toronto to take up residence in Detroit and to enter upon a medical career. In 1899 he graduated from the Detroit College of Medicine and Surgery.

He is survived by his wife, Tamar; two brothers, Ernest W. Walker of Toronto, and Fred L. of Cleveland; three sisters, Miss Lillian Walker of Toronto, Mrs. W. C. Embury of Warsaw, New York, and Miss Mabel Oliver of Vancouver, B. C. Dr. Walker was a member of the Wayne County and Michigan State Medical Societies.

How Much Are Your Dues?

A considerable number of physicians smoke cigars; two five-cent ones each day cost for the year \$36.50. For those who use the cigarette, the annual outlay for one package daily is \$73.00.

There are few of us but who retain enough hairs upon our head to necessitate visiting the barber at fortnightly intervals. This amounts to \$9.10. Shaving is mostly done at home but even with modern perfection in safety razor blades, the average required for this chore during the year will be 100 blades, a cost of \$5.00.

What are your lodge dues for the year? How much does it cost you to swing at that elusive golf ball one afternoon a week? How much money have you invested in fishing tackle? What did that last hunting trip cost you? Your daily paper costs you around eight dollars a year.

Are medical society dues really too much?—From *The Journal of the Arkansas Medical Society*, May, 1937.

anatomical and functional background are treated briefly (but effectively) the major part of this text is concerned with anomalies of the foot. Injuries, infections, edematous conditions, ulcers, growths, chilblains, corns, affections of the nails, abnormalities and paralyses are the subject of a few of the twenty-six chapters and will give an idea of the extent of the book. It gives the impression of completeness and authority. The material is well indexed and is provided with a number of x-ray and photographic illustrations.

THE DIAGNOSIS AND TREATMENT OF POSTURAL DEFECTS. By Winthrop Morgan Phelps, B.S., M.D., F.A.C.S., Professor of Orthopaedic Surgery, Yale University; Orthopaedist-in-chief, New Haven Hospital; Orthopaedic Surgeon, Yale University Department of Health; and Robert J. H. Kiphuth, Assistant Professor of Physical Education, Yale University; Head Coach in Swimming, Yale Athletic Association. 180 pages. Chas. C. Thomas, Springfield, Ill., and Baltimore, Md.

This work, the result of collaboration of an orthopaedic surgeon and an athletic director, deals with the mechanics of posture in individuals having no gross skeletal or muscular defects. Chapters are devoted to normal posture, body mechanics, postural examination and corrective exercises. The authors treat of posture at various age periods, and the bulk of the discussion deals with the male. They take a rational view of body mechanics and point out that the problems of weight distribution and balance are different for different age, sex and body builds.

Among Our Contributors

Dr. William M. Donald received his early and intermediate education in the public and grammar schools of Goderich, Ontario, passed with honors Senior matriculation at Toronto University and entered McGill Medical School in 1883. He graduated from Wayne University Medical School in 1887. He has filled the office of Professor of Medicine at the same school for the past fifteen years.

* * *

Dr. Frances A. Ford is a graduate of the University of Minnesota Medical School, 1921. She is a licentiate of the American Board of Radiology and was formerly associate consultant in the department of therapeutic radiology of the Mayo Clinic, Rochester, Minnesota, and instructor in radiology in the Mayo Foundation.

* * *

Dr. Clyde K. Hasley is a graduate of the University of Michigan, 1918. He was Instructor in Dermatology and also in Roentgenology, University of Michigan. He is Attending Radiologist, also Attending Dermatologist at Grace Hospital, Detroit, Mich.

* * *

Dr. Harry M. Nelson was graduated from the University of Michigan Medical School in 1920. He is a licentiate of the American Board of Obstetrics and Gynecology, and is a Fellow of the American College of Surgery. He formerly was an Instructor in the Surgical Department of the University of Michigan and Associate in Obstetrics and Gynecology at the Henry Ford Hospital. He is Gynecologist-in-Chief and Senior Attending Obstetrician at Woman's Hospital, Detroit, and also is on the visiting staff of Henry Ford Hospital, Detroit. He is Assistant Professor in Gynecology at Wayne University.

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333 South Jefferson Avenue
Saginaw, Michigan

L. M. SNYDER, M.D.

Attorney at Law

MEDICOLEGAL COUNSELOR
1201 City National Building
LANSING, MICHIGAN

**HARLEN MACMULLEN, M.D.
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NOTICE TO CONTRIBUTORS

Owing to the limitation of space, preference will be given brief articles.

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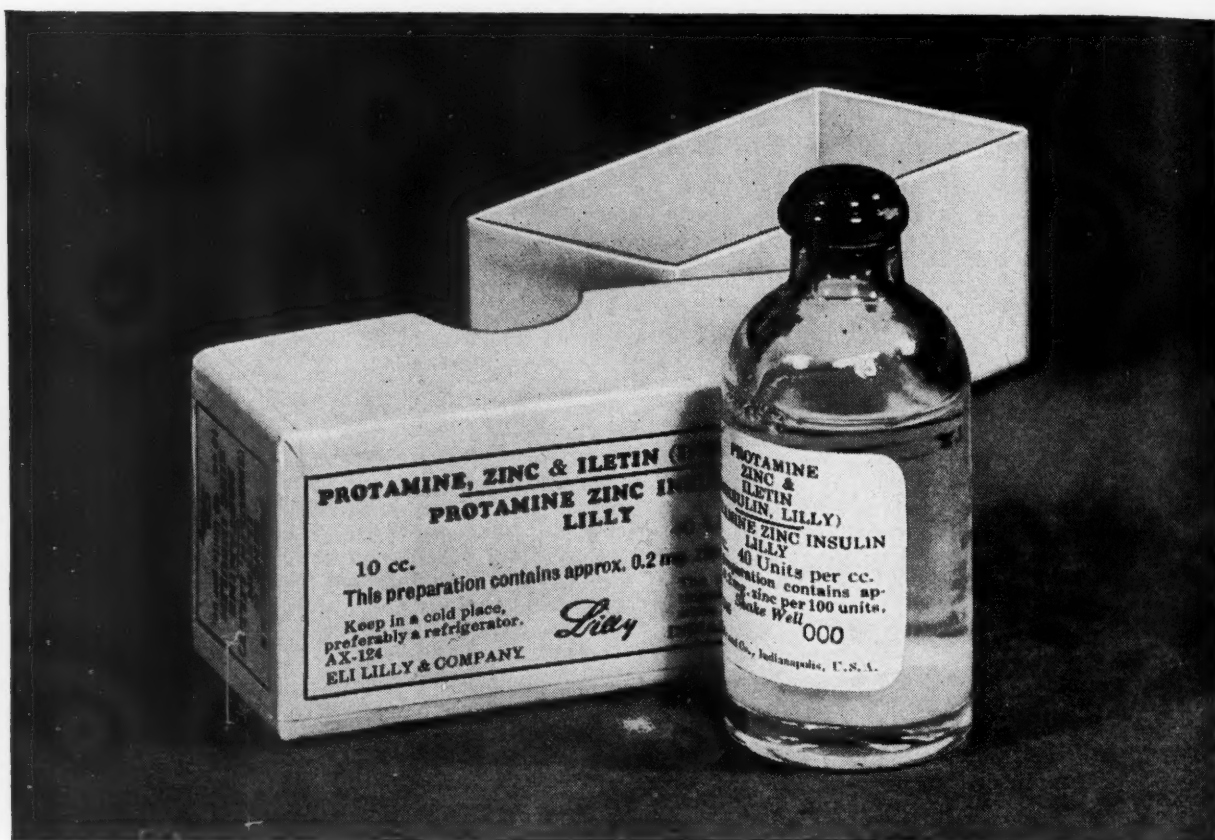
All photographs should be clearly focused prints on glossy paper (do not send negatives). The standard 8x10 or 5x7 size prints are recommended.

All line drawings (charts, diagrams and sketches) are to be drawn with India ink on stiff white paper or Bristol board. Drawings are to be made with pen lines of suitable thickness to allow reduction to the width of one or two columns, as the case may be, of the Journal. Do not send drawings in colored ink.

Illustrations will be accepted only if they reach a certain standard of excellence technically and present an attractive appearance. Illustrations, both photographs and drawings, are to be separate from the text. These each should be labeled on the back with the Figure number, legend, title of paper and the author's name.

Reprints of papers published will be furnished authors at cost if the order is placed at the time the galley proofs are returned to the editor. **The cost of illustrations is to be defrayed by the author of the paper whether reprints are ordered or not.**

Contributors are responsible for all statements, conclusions and methods in presenting their subjects. Their views may or may not be in agreement with those of the editor. The aim, however, is to allow authors as great latitude as the general policy of the Journal and the demands on its space may permit. The right to reduce in length or to reject any article is reserved. Articles are accepted for publication on condition that they are contributed solely to this Journal.



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